DxMONITOR

Animal Health Report

Inside this Issue

Spring 1994

The DxMONITOR Animal Health Report is distributed quarterly as part of the Veterinary Diagnostic Laboratory Reporting System (VDLRS). The VDLRS is a cooperative effort of the American Association of Veterinary Laboratory Diagnosticians (AAVLD), the United States Animal Health Association (USAHA), and the United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA:APHIS). The purpose of the DxMONITOR is to report trends of confirmed disease diagnoses and animal health data collected from veterinary diagnostic laboratories and the USDA:APHIS.

Caution should be taken when extrapolating information reported in the DxMONITOR due to the inherent biases of submitted specimens. Trends should be interpreted with care. An increase in the number of positive tests for a given diagnosis/agent may be the result of a true increase in prevalence, or, it may only reflect a new State testing requirement, a heightened awareness of the condition, or an increase in the number of laboratories reporting data.

New for this issue: the disease reporting period for new data was October 1, 1993 through December 31, 1993. Data have been reported by diagnostic laboratories in the States indicated on the inside back cover, the National Veterinary Services Laboratories (NVSL), and the APHIS:Veterinary Services program staffs.

Test results are now presented as percent positive rather than number positive and negative to facilitate comparison among regions. Laboratory reported diseases in Section I are reported as percent of tests. Diseases in Section II are reported as percent of accessions. Increases in denominators may be a reflection of the addition of new labs and/or labs reporting additional diseases not previously reported.

Send all correspondence and address changes to:

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(303) 490-7800

Lab Notes

This section presents short descriptions of current investigations, outbreaks, or events of potential interest to diagnostic laboratories. The purpose is to provide a forum for timely exchanges of information about veterinary diagnostic laboratory activities. Submissions from nonparticipating laboratories are welcome.

Detection of Porcine Respiratory and Reproductive Virus Antibodies by Indirect Fluorescent Antibody Test (PRRS-IFA)

In April 1993, the Wisconsin Animal Health Laboratories at Madison, Wisconsin, began PRRS-IFA testing. While developing quality control and assurance procedures for the test, three interesting observations were made. Other diagnostic laboratories planning to introduce PRRS-IFA may benefit from these observations.

In developing the PRRS antigen substrate slides, strict adherence to the National Veterinary Services Laboratories' protocol (kindly provided by Mr. Ken Eernisse) is important. After the MARC-145 cells have formed a confluent monolayer, the spent medium should be left on the cell sheet and a suitable dilution of PRRS virus should be inoculated directly into the medium. If the tissue culture medium is changed to fresh maintenance medium containing serum at this step, the PRRS virus will not replicate in the MARC-145 cells. The hypothesis is a non-specific inhibitory factor(s) in the serum (even chicken serum) may inactivate the PRRS virus.

Hemolysis frequently has a detrimental effect on PRRS antibody detection by the IFA test. Samples that originally tested positive for PRRS antibody either tested negative or gave erratic positive results after the samples were hemolyzed. When preparing samples for PRRS-IFA testing, serum should be poured off after the blood clots have retracted. This is especially important in the North-Central States of the U.S. in winter months when samples mailed to diagnostic laboratories may hemolyze in transit.

It is important to check PRRS antigen slides for *Mycoplasma* contamination, which may cause false positive reactions. Pigs infected with *Mycoplasma* spp., or which carry antibodies to *Mycoplasma*, could give spurious results on PRRS-IFA.

Contact: Pam Bolin, Laboratory Technologist, and Sanjay Kapil, D.V.M., Ph.D., Veterinary Virologist, Wisconsin Animal Health Laboratories, Madison, WI, (608) 266-2465.

Emerging Pathogen in Virginia Poultry

Since December 1993, eight cases of an avian cholera-like illness in 8-9 week-old turkeys, both toms and hens, have been identified in Virginia. In all eight of these cases, the causative agent was determined to be *Pasteurella hemolytica*, not the traditional *P. multocida*. Mortality was lower than in classic avian cholera and gross lesions were less severe. Although there was extensive pneumonia and congestion of the airsacs and lungs, there was no consolidation of the lung tissue. Also, the response to antibiotic treatment (drop in mortality) was much faster than is usually seen with *P. multocida* infections. Penicillin was found to be the drug of choice in all eight cases by antibiotic testing and response to therapy.

In early February 1994, the first case of *P. hemolytica* was diagnosed in a commercial egg-layer flock from Virginia. Mortality in the 92 week-old flock of 48,000 birds increased from an average of 20/day to 100/day and egg production dropped four percent. In contrast to the typical finding of egg yolk peritonitis with *P. multocida* in egg-layers, the *P. hemolytica*-infected birds had congestive pneumonia as the primary lesion, similar to what was seen in the turkey cases. The *P. hemolytica* isolate from this case was sensitive to lincomycin, penicillin, sulfas, and neomycin by the Kirby-Bauer disc diffusion assay.

Cases of *P. hemolytica* in broilers in Georgia within the past year have been reported, but this is the first identification of the organism as a pathogen in commercial poultry production in Virginia. Additional work on this isolate is being performed at both the Poultry Disease Research Center at the University of Georgia and at Virginia Polytechnic and State University.

Contact: Dr. Bruce Akey, Chief, Bureau of Laboratory Services, Virginia Department of Agriculture and Consumer Services, Richmond, VA, (804) 786-9202.

Virginia Rabies Update

January 1 through December 31, 1993, 387 rabies cases were detected in the Commonwealth of Virginia, as compared to 350 cases by the same date in 1992. There were fewer cases of rabies in cats, dogs, goats, and sheep in 1993 compared to 1992. An increase in raccoon and skunk rabies cases is responsible for the overall increased number of rabies cases in 1993 compared to 1992. Below is a breakdown of affected species for 1993.

1993 Virginia Rabies Cases

Bat	12
Bovine	11
Cat	19
Dog	4
Ferret	1
Fox	23
Ground hog	6
Horse	3
Otter	1
Raccoon	213
Skunk	94
	387

Contact: Dr. Leslie Black, Division of Animal Health, Virginia Department of Agriculture and Consumer Services, Richmond, VA, (804) 786-2483.

Swine Brucellosis and Pseudorabies State Classification Changes

Swine Brucellosis: Kansas advanced to the Free status. Fewer than 40 infected herds are known to exist in five States.

Pseudorabies: Arizona, Mississippi, and New Mexico advanced to Stage V (Pseudorabies free); Nevada advanced to Stage IV; California and Vermont advanced to Stage III; and Maryland and the Virgin Islands advanced to Stage II. Currently, Alaska, Arizona, Connecticut, Maine, Mississippi, New Mexico, New York, Utah, and Wyoming are Pseudorabies free.

Source: USDA Press Releases, Jan. 4; Jan. 6; Jan 27, 1994.

Adenovirus in California Wild Deer

Between August 1993 and February 1994, thirteen deer from eight different counties in northern California were diagnosed with adenovirus infection. Submissions by the California Wildlife Investigations Laboratory to the Davis branch of the California Veterinary Diagnostic Laboratory System (CVDLS) were a representative sample of deaths which occurred in the northern California deer population. Mortality was estimated in the thousands. Die-offs were reported in northern California sites ranging from the Oregon border to Yosemite National Park.

The first positive deer was submitted for necropsy to the CVDLS Davis in mid-August 1993. Ten more deer, out of 26 examined from August to December 1993, were diagnosed with adenovirus infection. Two more cases were confirmed in 1994, with the most recent case diagnosed in February 1994. Confirmed cases were mostly in fawns, but juveniles and adults were also affected. The species were all Pacific Black-tailed deer, except for one Mule deer. Clinical disease, when observed, was reported to follow a rapid course. Clinical signs included "foaming at the mouth," regurgitation, diarrhea, seizures, recumbency, and death. Some cases came from areas where as many as 60 deer of all ages were reported to have been found dead.

The striking histopathologic feature of the disease is multi-systemic vasculitis, with the most severe lesions in the lungs, alimentary tract, and brain. Adenovirus-like particles were confirmed by electron microscopy in degenerate endothelial cells lining the damaged vessels. The virus has not been isolated in cell culture at this time, but isolation attempts are still in progress.

Contact: Dr. Leslie Woods, California Veterinary Diagnostic Laboratory System, Davis, CA, (916) 752-8700.

I. Patterns of Selected Diseases

Section I contains information on diseases of interest as designated by List B of the Office International des Epizooties (OIE). The purpose of reporting these data is to monitor confirmed cases of specific diseases on a State-by-State or regional basis so that national distributions can be mapped and evaluated.

Key to Figures in this Section:

- **The percents positive presented here are the number of positive tests out of the total number of tests run and should NOT be interpreted as disease prevalence or incidence rates.**
- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region or State of specimen origin and quarter year of specimen submission.**
- **Results reported with dates not corresponding to the current quarter are the result of different testing intervals or related to different reporting times.**
- **See map on inside back cover for regions.**

☐ Bovine Leukosis

Criteria: AGID or pathology.

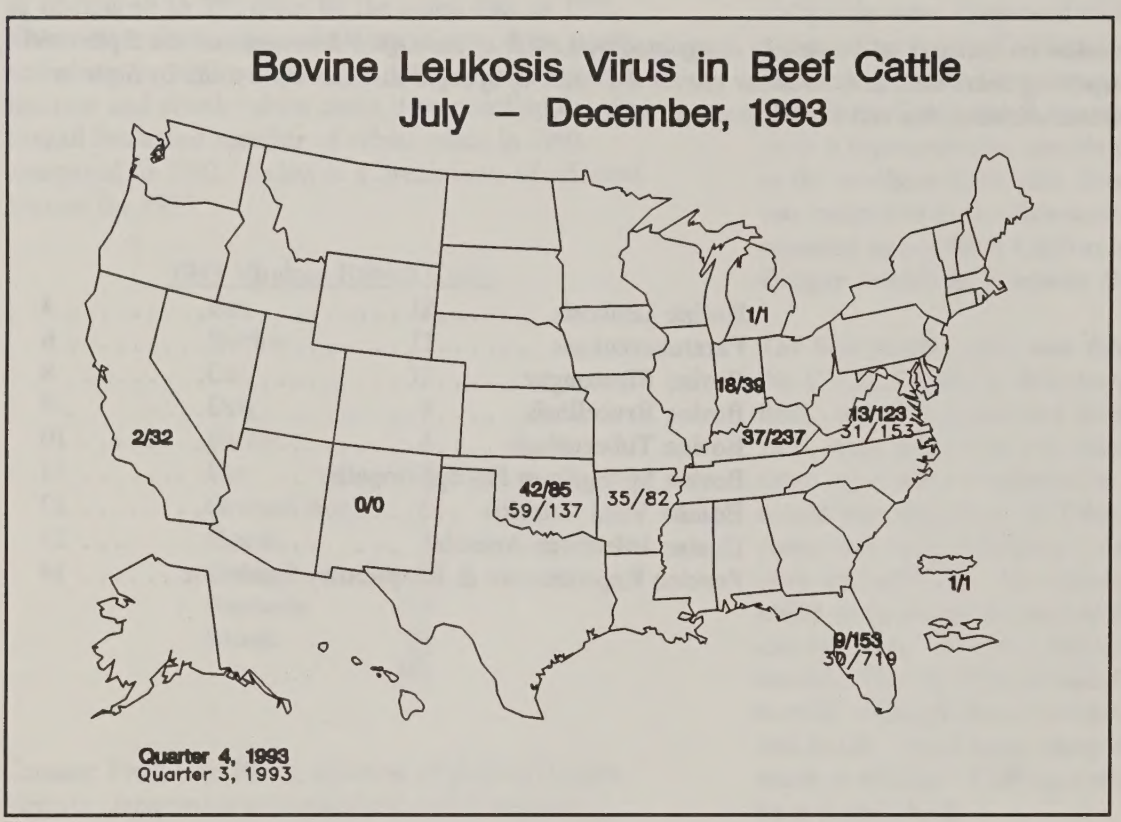

Figure 1

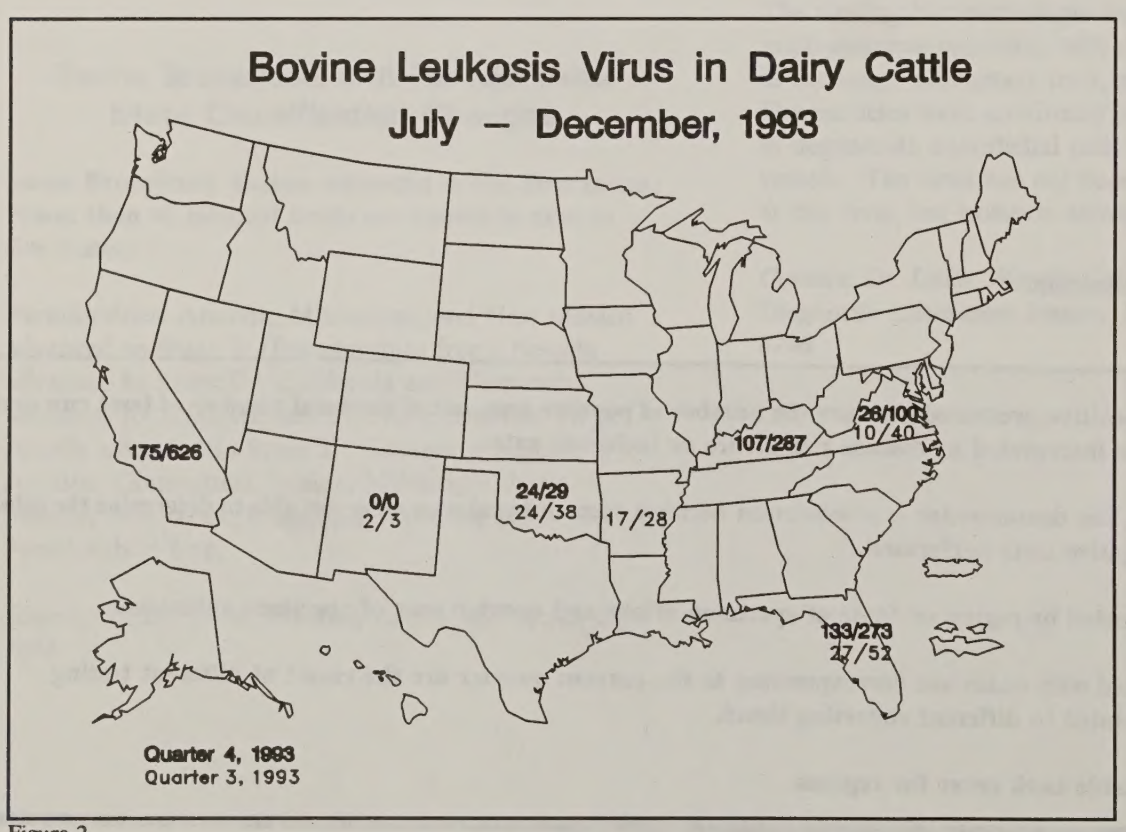

Figure 2

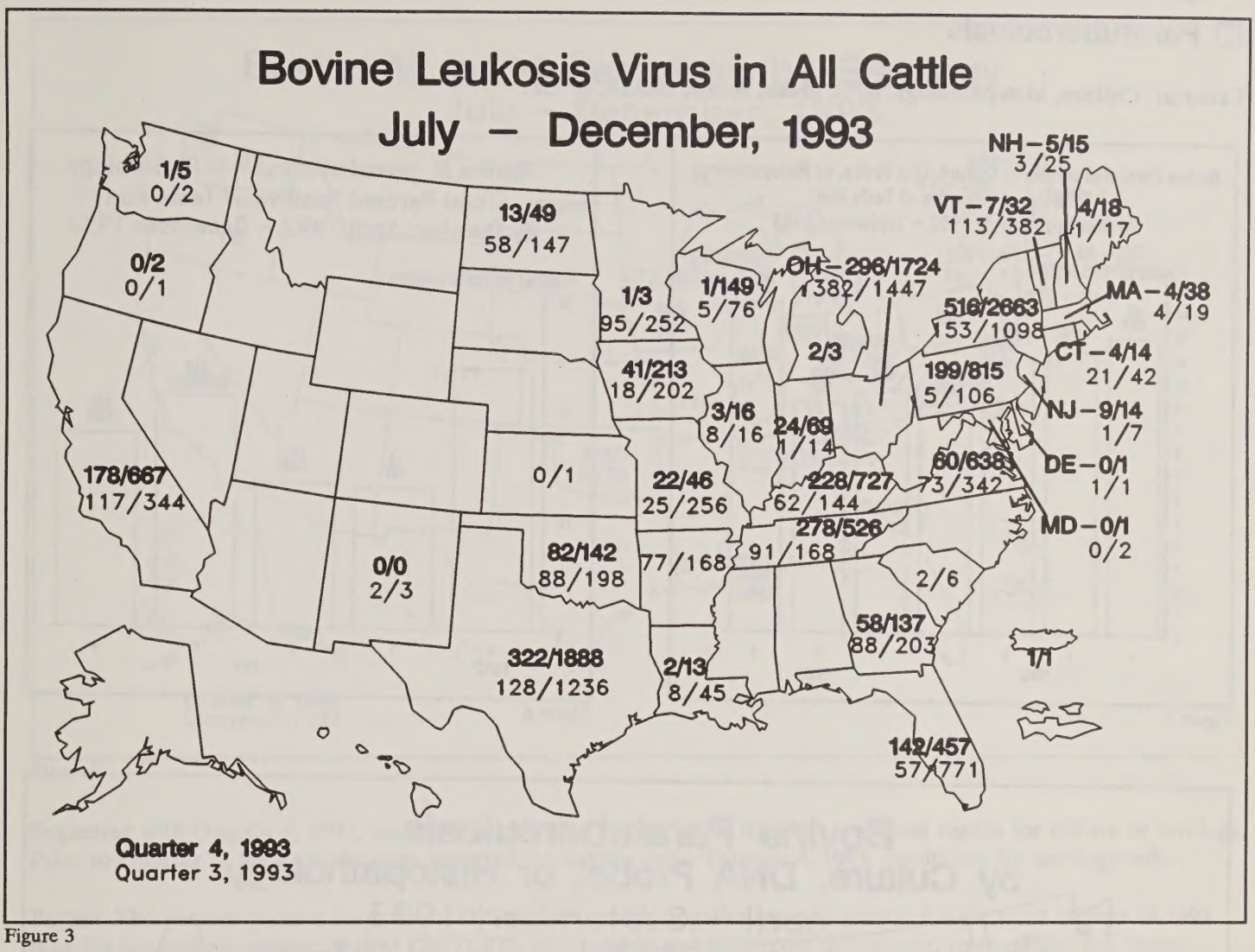

Figure 3

For the fourth quarter of 1993 (October through December), there were 2,503/11,086 (22.1 percent) positive tests for BLV compared to 1,687/7,741 (21.8 percent) for the third quarter of 1993 and 2,016/9,975 (20.2 percent) for the fourth quarter of 1992. Figures 1 through 3 show the distribution of BLV test results for the third and fourth quarters of 1993 in beef, dairy, and all cattle by State. All cattle includes results where the class was unknown. Figure 4 shows a comparison of the total percent of positive tests by quarter.

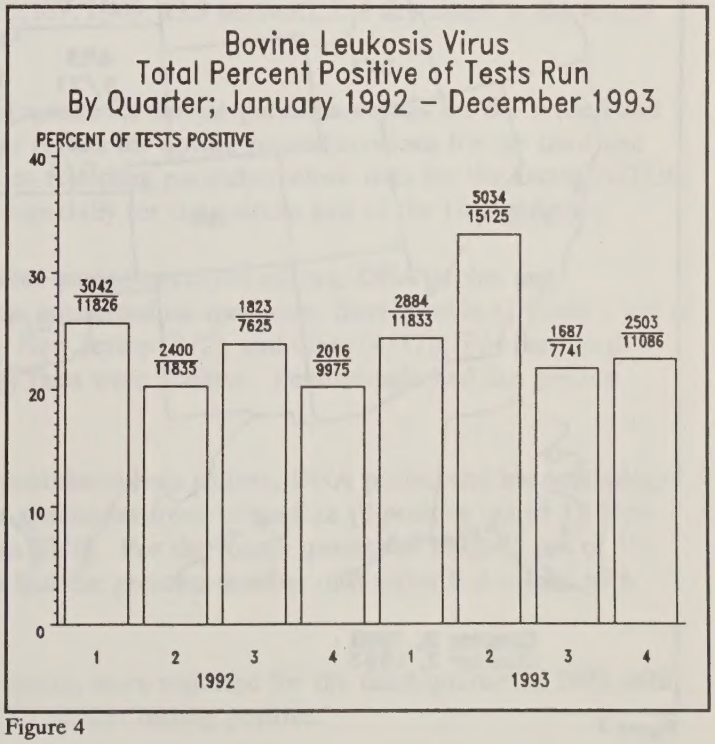

Figure 4

☐ Paratuberculosis

Criteria: Culture, histopathology, DNA probe, AGID, ELISA, or CF.

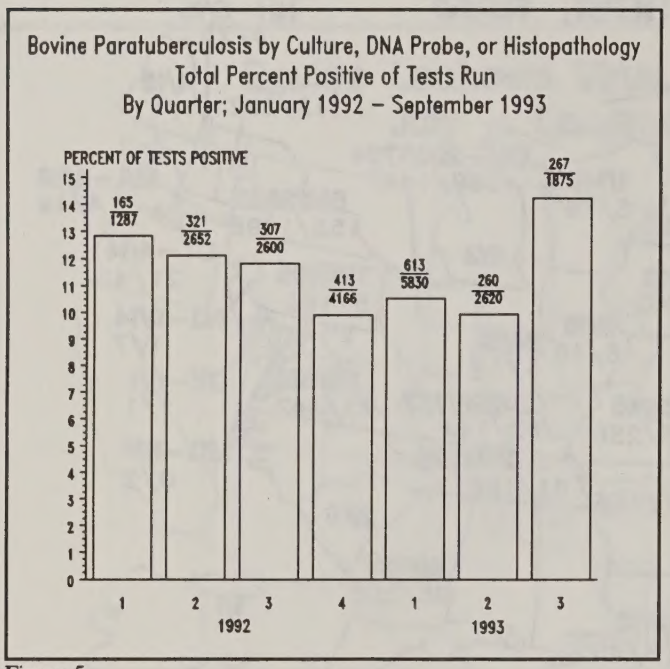

Figure 5

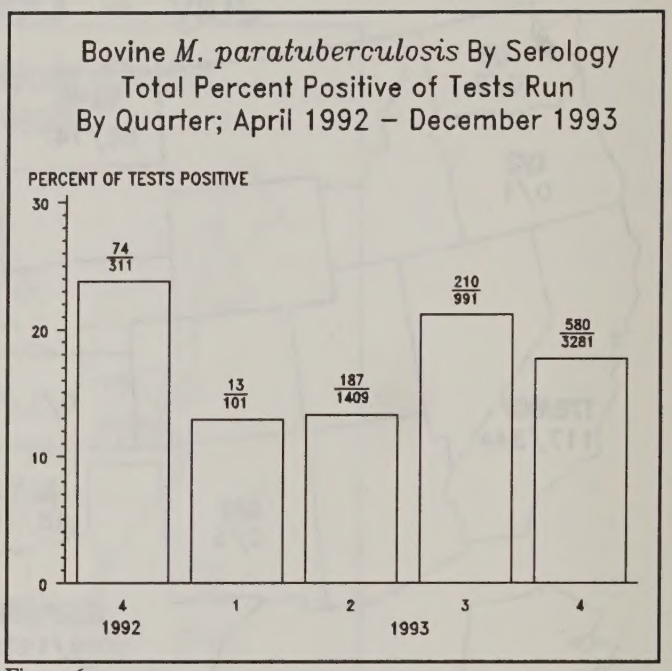

Figure 6

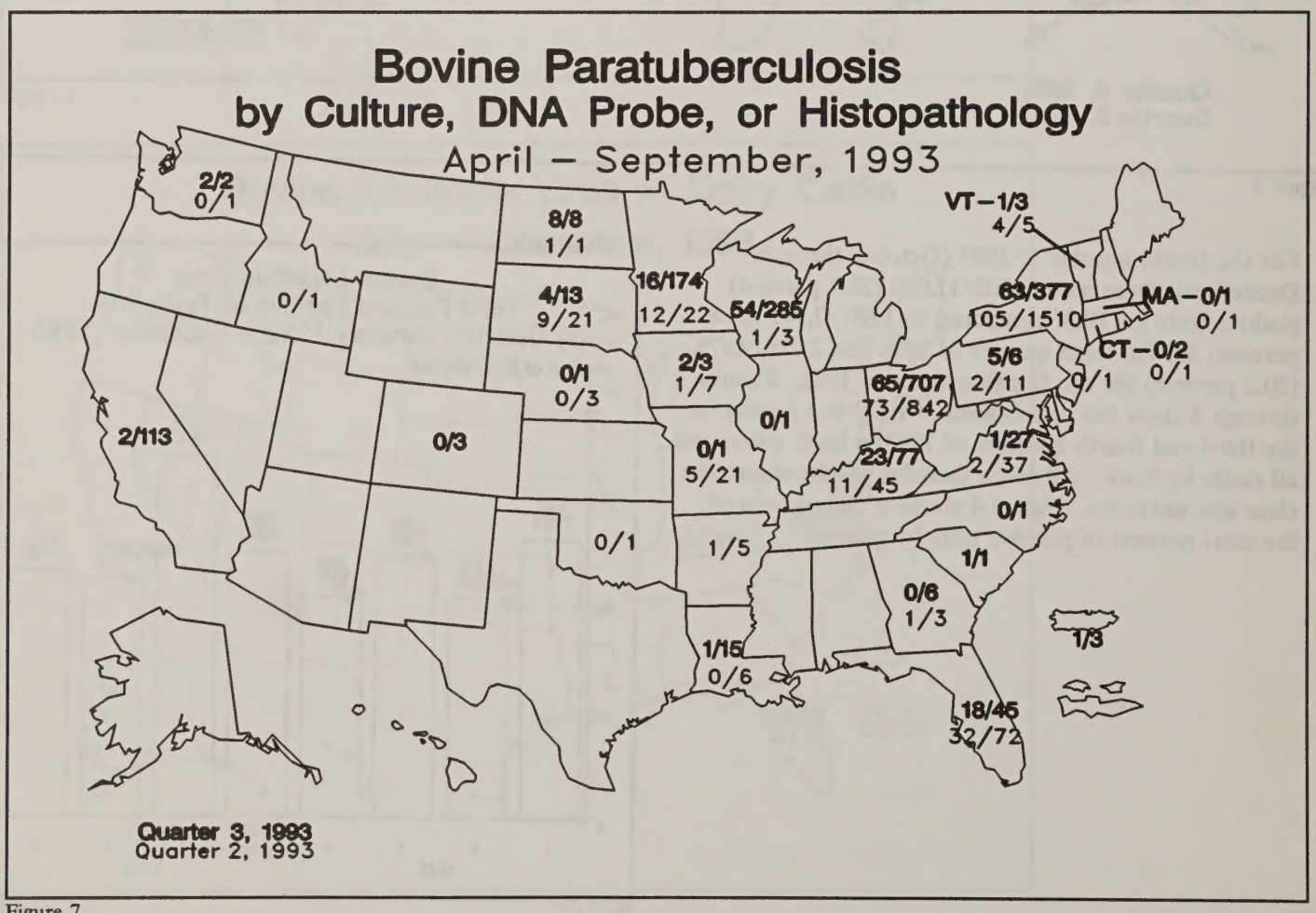

Figure 7

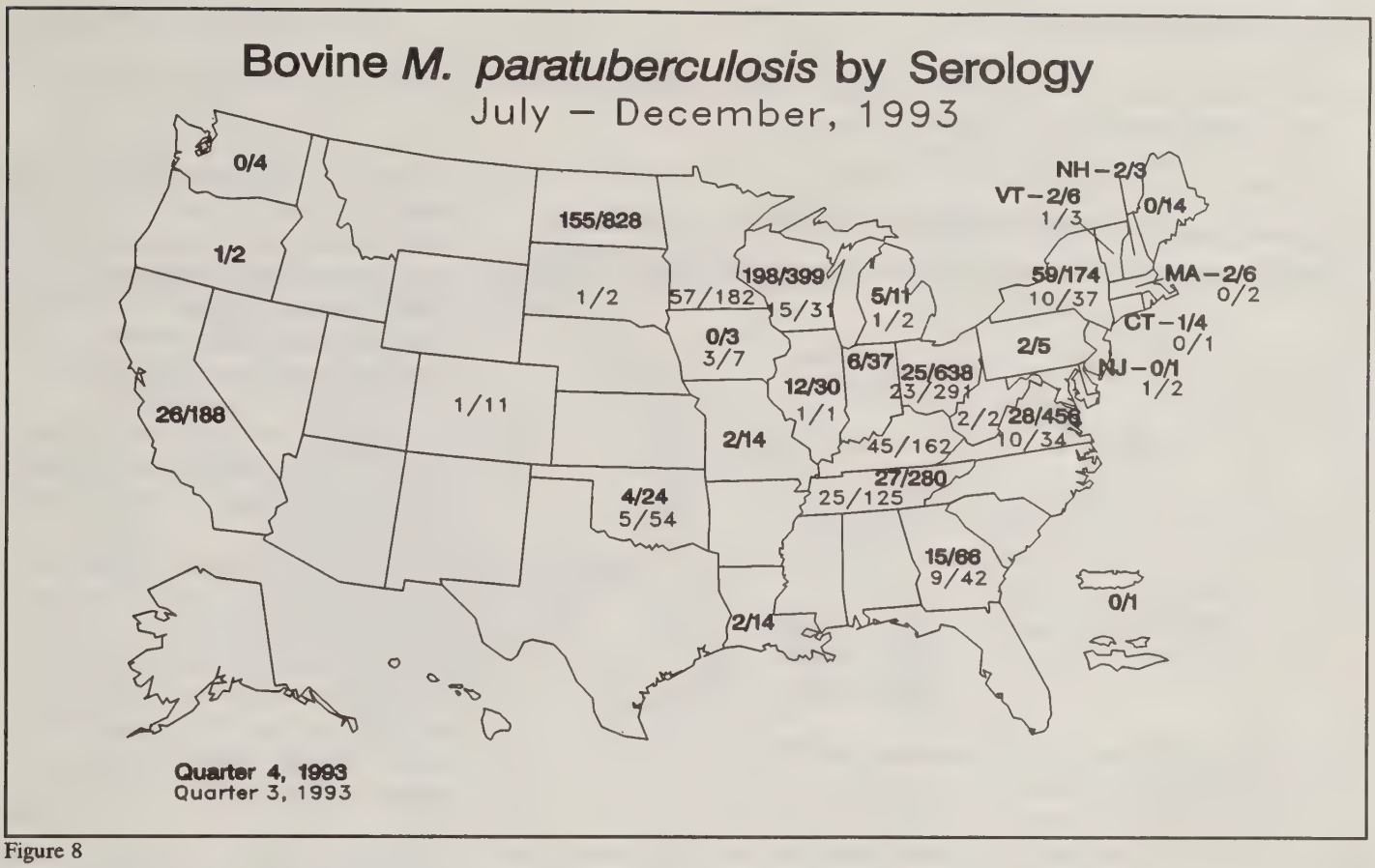

Figure 8

Beginning with Quarter 4, 1992, paratuberculosis data for the DxMONITOR represent results for culture or serology. Prior to Quarter 4, 1992, results were reported for culture only. Quarter 4, 1993, results are for serology only.

Bovine: The percent positive for culture, DNA probe, and histopathology was greater for the third quarter of 1993 than for the second quarter of 1993 (267/1,875, 14.2 percent and 260/2,620, 9.9 percent, respectively) for bovine paratuberculosis (Figure 5). The percent positive for bovine serology was greater for the third quarter of 1993 (210/991, 21.2 percent) than for the second quarter of 1993 (187/1,409, 13.3 percent), but decreased in the fourth quarter (580/3,281, 17.7 percent) of 1993 (Figure 6).

Figure 7 shows the culture, DNA probe, and histopathology results for bovine paratuberculosis for the second and third quarters of 1993 by State. Figure 8 shows the serology results for bovine paratuberculosis for the third and fourth quarters of 1993 by State. The number of laboratories reporting paratuberculosis data for the DxMONITOR is steadily increasing for both serology and histopathology, especially for the eastern half of the United States.

Caprine: For the third quarter of 1993, eight out of 24 caprine paratuberculosis culture, DNA probe, and histopathology tests were positive (33.3 percent). Tests were conducted on specimens from Florida (1 positive out of 2), Minnesota (1/1), New York (1/1), North Dakota (1/1), New Jersey (0/2), and Ohio (4/17). For the fourth quarter of 1993, 33 out of 412 (8.0 percent) caprine serology tests were positive. Pennsylvania had the greatest number of positive test results with 14/87 (16.1 percent).

Ovine: For the third quarter of 1993, one out of 10 ovine paratuberculosis culture, DNA probe, and histopathology tests was positive (10.0 percent). Tests were conducted on specimens from Minnesota (0 positive out of 1), New York (1/3), Ohio (0/3), Oklahoma (0/2), and South Dakota (0/1). For the fourth quarter of 1993, 15 out of 316 ovine serology tests were positive (4.7 percent). New York had the greatest number of positive test results with 10/173 (5.8 percent).

Other: In addition, culture results for some nontraditional species were reported for the third quarter of 1993, with 1/2 deer (Ohio), 2/2 llamas (Colorado), 0/1 camel, and 0/1 reindeer testing positive.

Bovine Bluetongue (BT)

Source: Dr. A. D. Alstad, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, Ames, Iowa (515) 239-8266

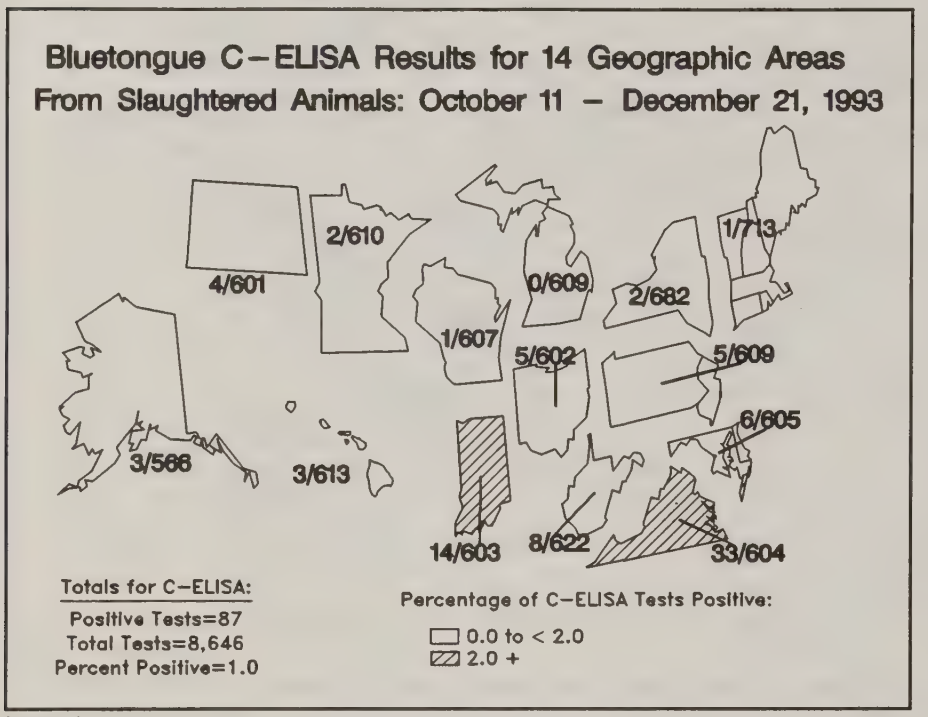

Figure 9

The 1993/94 bluetongue (BT) serologic survey of 19 northeastern and north-central States plus Alaska and Hawaii was conducted from October 11 through December 21, 1993. As in prior surveys, these States were combined into 14 geographic areas. Instead of using the traditional immunodiffusion procedure, this study utilized the competitive enzyme-linked immunosorbent assay (C-ELISA) test.

A total of 8,646 slaughter samples were tested, of which 87 (1.0 percent) were C-ELISA positive (Figure 9). Two of the 14 geographic areas sampled had 2.0 percent or greater C-ELISA-positive samples. Virginia and Indiana had 5.5 percent and 2.3 percent positive, respectively.

Thirty-nine of the 87 C-ELISA positive samples tested positive for BT only by serum neutralization (Table 1). Thirty-three of the C-ELISA positive samples had neutralizing antibody against BT and epizootic hemorrhagic fever (EHD) and two had antibody against EHD only. The remaining 13 C-ELISA positive samples were negative for neutralizing antibody against BT and EHD.

Bluetongue NT Results on the 87 C-ELISA Positive Samples

State	C-ELISA Positive	Neutralization Test BT	EHD	BT&EHD	Negative
Alaska	3	1	0	0	2
Connecticut	0	0	0	0	0
Delaware	1	1	0	0	0
Hawaii	3	2	0	0	1
Indiana	14	4	0	9	1
Maine	1	0	0	0	1
Maryland	5	3	0	1	1
Massachusetts	0	0	0	0	0
Michigan	0	0	0	0	0
Minnesota	2	1	0	1	0
New Hampshire	0	0	0	0	0
New Jersey	0	0	0	0	0
New York	2	0	0	0	2
North Dakota	4	2	0	1	1
Ohio	5	2	1	1	1
Pennsylvania	5	2	0	2	1
Rhode Island	0	0	0	0	0
Vermont	0	0	0	0	0
Virginia	33	15	1	16	1
West Virginia	8	5	0	2	1
Wisconsin	1	1	0	0	0
Total	87	39	2	33	13

Table 1

☐ Bovine Brucellosis

Source: Dr. Mike Gilsdorf
USDA:APHIS:VS
Cattle Diseases Staff
(301) 436-4918

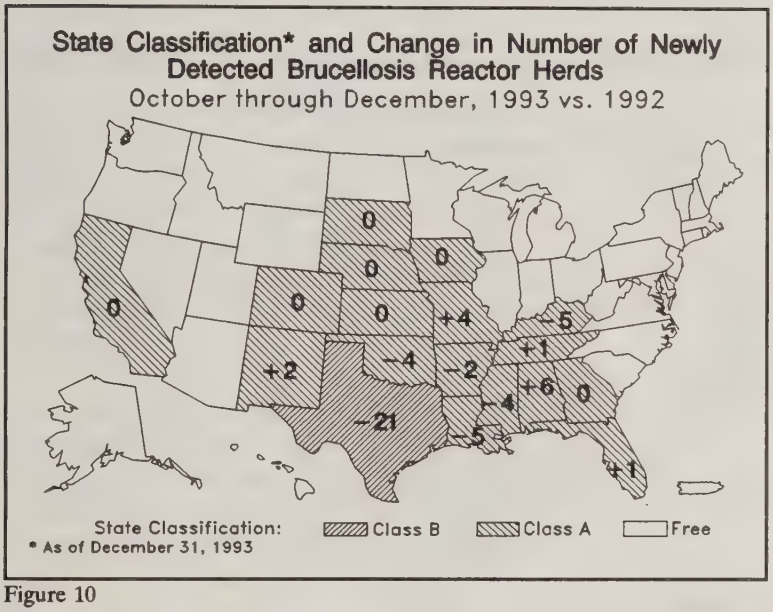

Figure 10

Reactor herd = Herd with at least one case of brucellosis confirmed by serology or culture.

Definition of State Classifications:

Class B: More than 0.25 percent, but less than 1.5 percent of all herds infected.

Class A: No more than 0.25 percent of all herds infected.

Free: No infected herds under quarantine during the past 12 months.

From October 1, through December 31, 1993, there were no State classification changes for bovine brucellosis. Alabama, Florida, Missouri, and New Mexico had increased numbers of newly detected herds, while Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, and Texas had decreased numbers (Figure 10).

For the entire U.S., there were 73 newly detected reactor herds from October through December 1993 (Figure 11), 18 more herds than were newly identified from July through September 1993. Only Texas had more than 10 newly detected brucellosis reactor herds during the quarter.

There were fewer brucellosis reactor herds detected in the fourth quarter of 1993 (73) than during the same quarter of 1992 (100). There was an increased number for both Texas and the remaining States compared to the third quarter of 1993 (Figure 12).

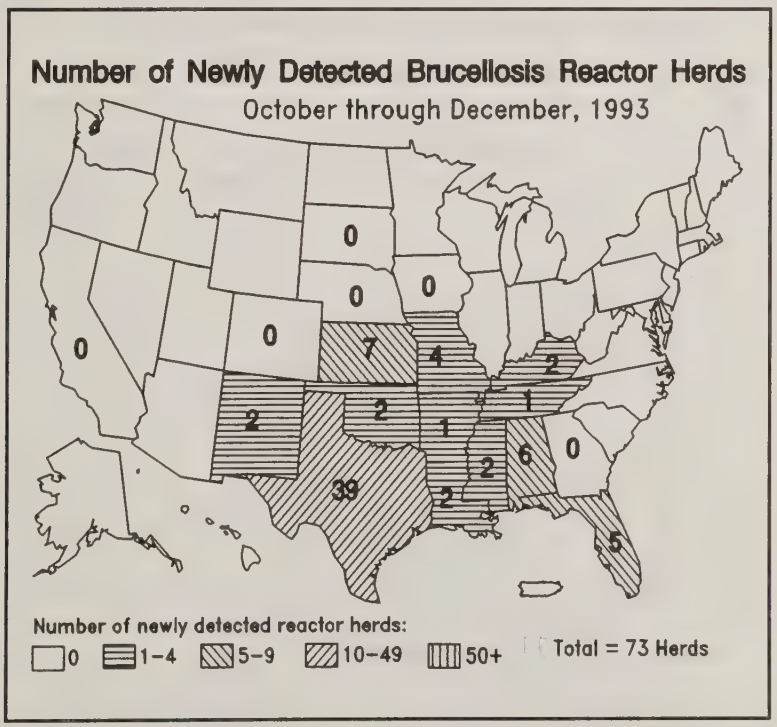

Figure 11

Figure 12

☐ Bovine Tuberculosis

Source: Dr. J.S. VanTiem
USDA:APHIS:VS
Cattle Diseases Staff
(301) 436-8715

Infected = Laboratory confirmed existence of *Mycobacterium bovis*.

Exposed = Animals directly associated with infected animals.

State Classifications:

Modified Accredited: Testing and Slaughter Surveillance programs in effect.

Accredited Free: Testing and Slaughter Surveillance programs have identified no infected bovines for five or more years.

Seven herds of cattle or bison were known to be infected with bovine tuberculosis as of December 31, 1993 (Figure 13). This is a decrease of five herds since September of 1993. There are currently nine modified accredited States plus Puerto Rico. The remaining States and the Virgin Islands are accredited free.

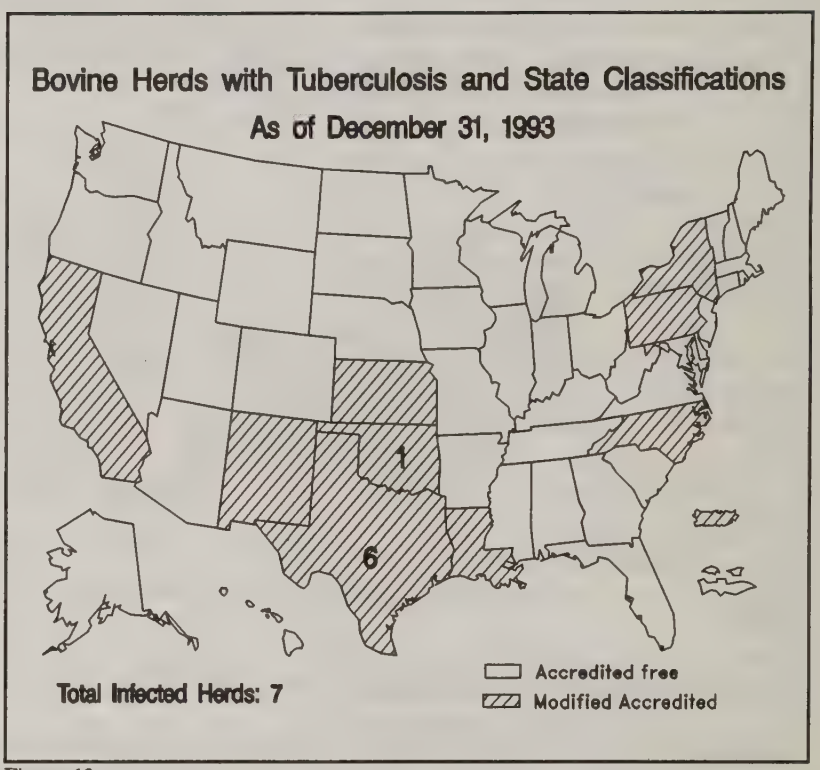

Figure 13

Eight captive cervid herds were known to be infected or exposed to bovine tuberculosis as of December 31, 1993 (Figure 14), five fewer than the previous quarter.

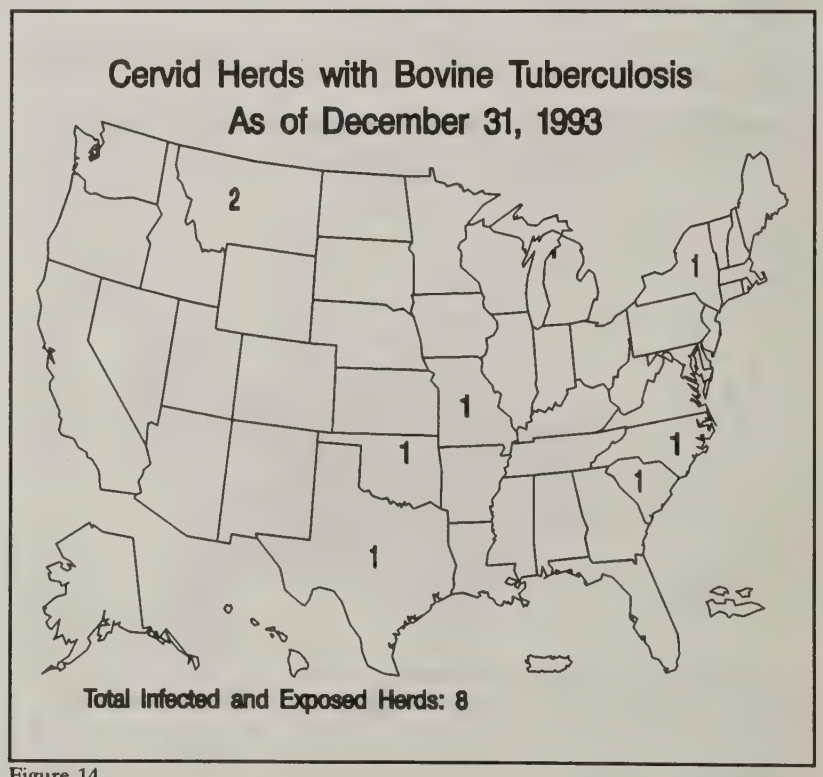

Figure 14

☐ Bovine Spongiform Encephalopathy (BSE)

Sources: Dr. G.O.Denny, Northern Ireland
Dr. A. Doherty, Republic of Ireland
Dr. B. Hornlimann, Switzerland
Dr. J. Wilesmith, Great Britain

Between December 3, 1993, and March 4, 1994, Great Britain had 7,991 newly confirmed cases of BSE with 1,315 more herds affected. About 49.8 percent (up from 48.3 in the previous quarter) of the dairy herds and 12.5 percent (up from 11.5) of the beef suckler herds in Great Britain have been affected (Table 2). The incidence of newly identified cases of BSE in Great Britain appears to have reached a peak in December of 1992, and now appears to be decreasing (Figure 15).

In the last three months, 177 additional confirmed cases of BSE have been reported from Northern Ireland, while the Republic of Ireland and Switzerland have had 6 and 11 cases respectively. Germany has identified two cases, both cases were imported (Table 3).

A total of 1,448 U.S. bovine brain specimens had been examined for BSE as of February 28, 1994. The CDC examined 163, NVSL examined 768, and various veterinary diagnostic laboratories examined 517. To date, no evidence of BSE has been found in any U.S. cattle (Figure 16).

Bovine Spongiform Encephalopathy
Descriptive Epidemiological Statistics for Great Britain*
As of March 4, 1994

Total number of confirmed cases:	121,266
Total number of affected herds:	29,659
Proportion of dairy herds affected:	49.3%
Proportion of beef suckler herds affected:	12.5%

* England, Scotland, and Wales

Table 2

Other Countries Affected by BSE

Country	Imported Cases	Native Cattle	No. of Cases	Date of Last Report
Northern Ireland	Yes	Yes	1,218	1 Mar 94
Republic of Ireland	Yes	Yes	86	1 Mar 94
Switzerland	No	Yes	64	1 Mar 94
France	No	Yes	6	13 Sept 93
Germany	Yes	No	2	18 Feb 94
Canada	Yes	No	1	15 Dec 93
Portugal	Yes	No	1	5 Nov 93
Oman	Yes	No	2	31 Jul 92
Denmark	Yes	No	1	10 Aug 92
Falkland Islands	Yes	No	1	4 Sep 92

Table 3

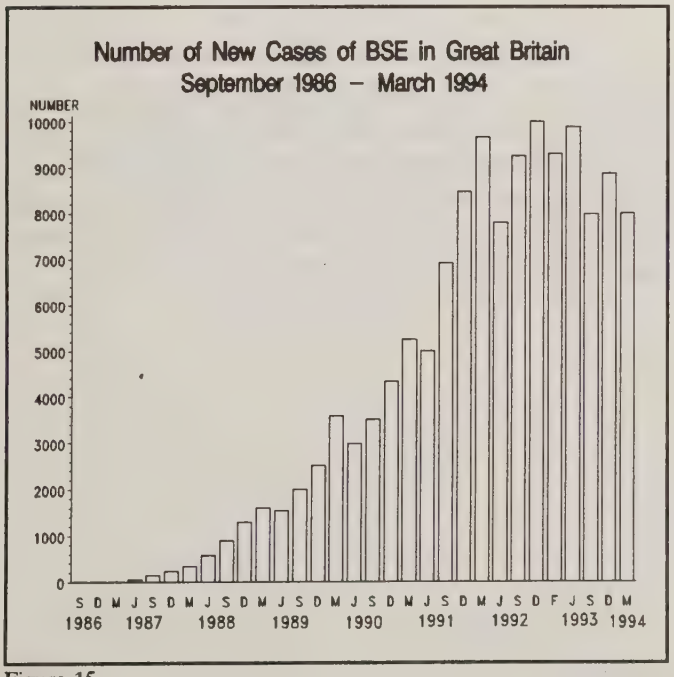

Figure 15

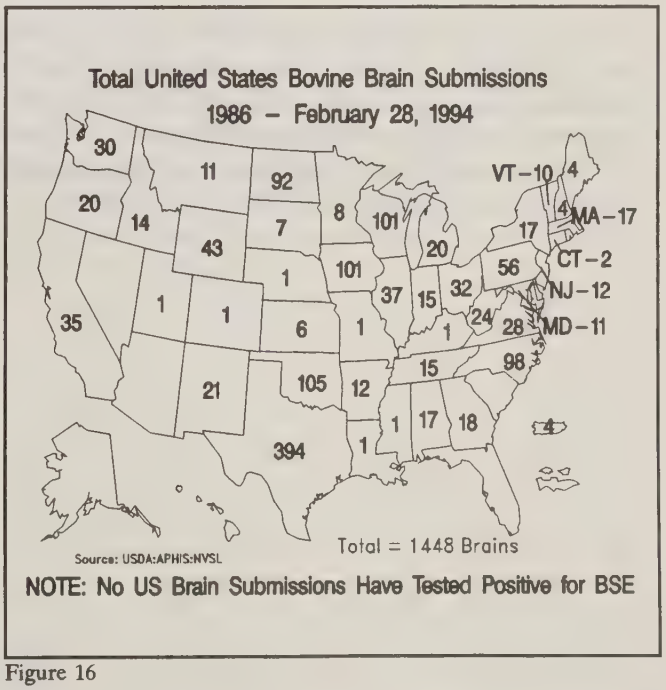

Figure 16

☐ Equine Viral Arteritis

Criteria: Virus neutralization (>1:4 titer) and no history of vaccination, or virus isolation (tissue or semen).

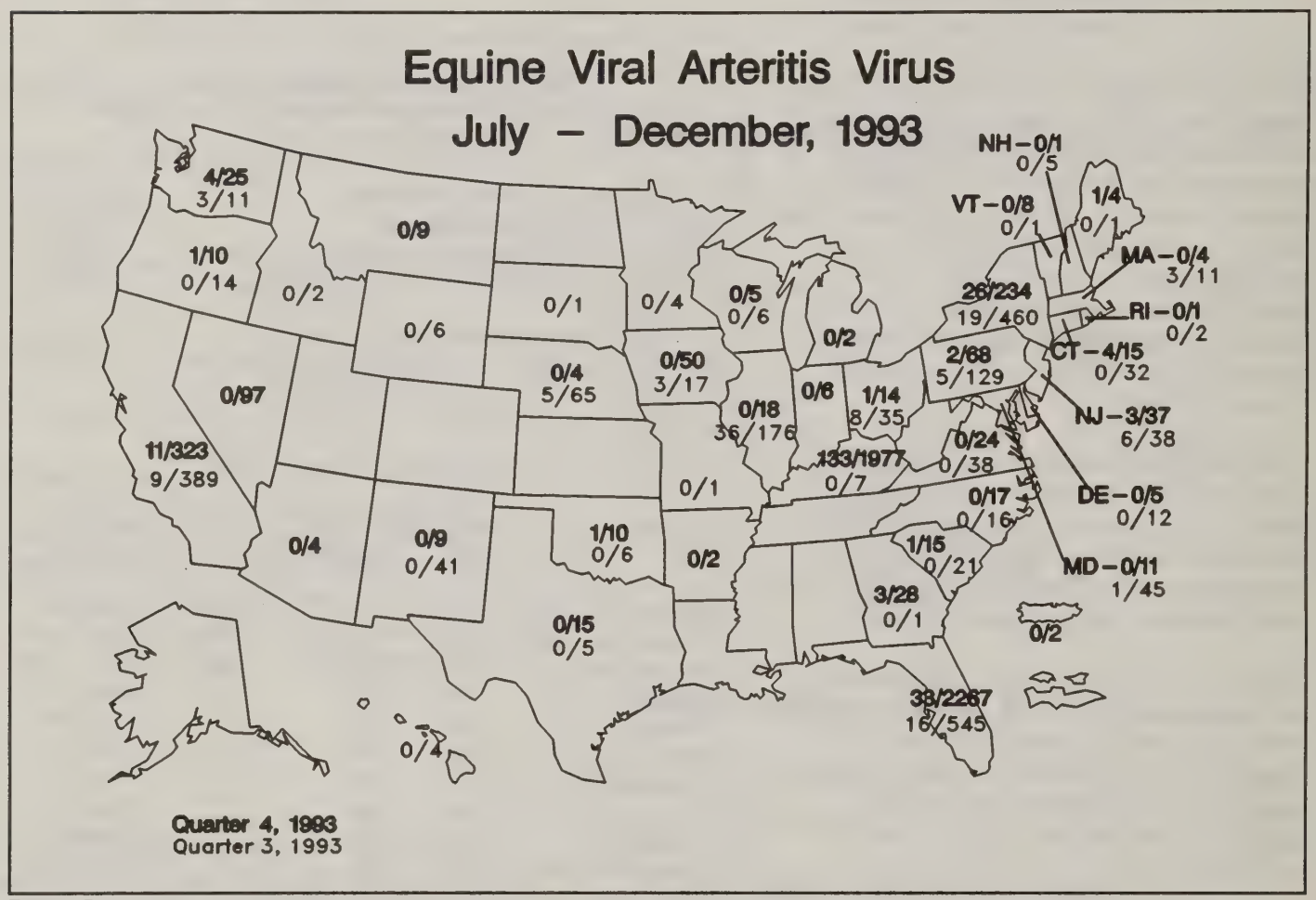

Figure 17

For all regions combined, 224 positive tests (4.2 percent of the 5,321 tests) for equine viral arteritis were reported for the fourth quarter of 1993 (Figure 17). This is a decrease in percent positive from the previous quarter (114 out of 2,147, 5.3 percent) and is similar to the fourth quarter of 1992 (170 out of 3,912, 4.3 percent; Figure 18).

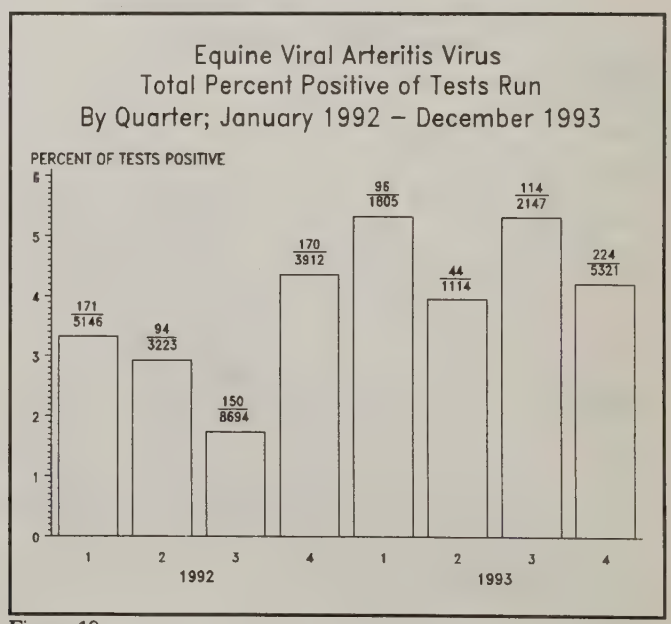

Figure 18

Equine Infectious Anemia (EIA)

Source: Dr. Joyce Bowling, USDA:APHIS:VS,
Import-Export Animals Staff, (301) 436-4325

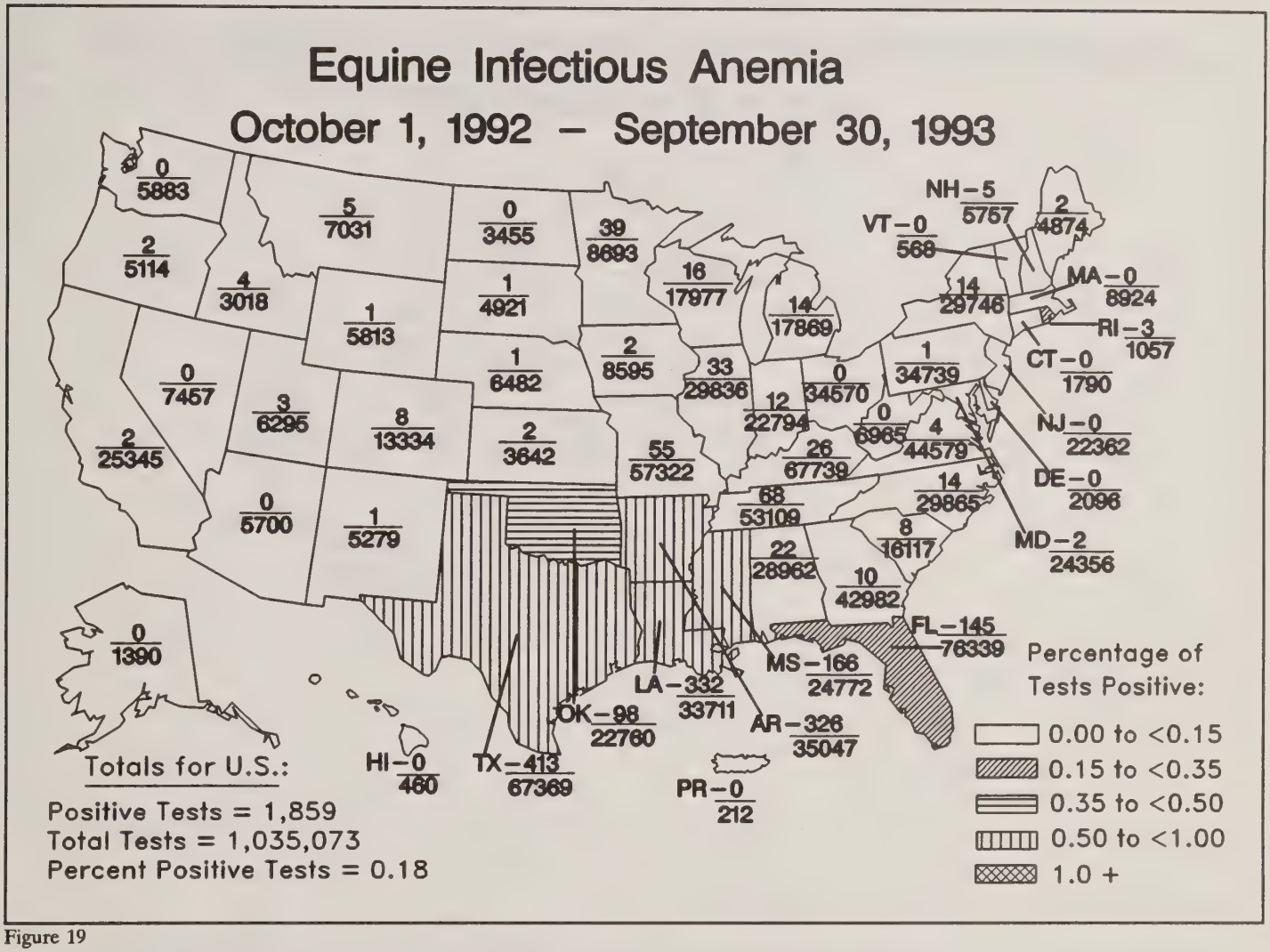

Figure 19

The percentage of AGID-positive tests has decreased over the last two years with 0.28, 0.24, and 0.18 percent positive as of September 30, 1991, 1992, and 1993 respectively (Figure 19). Caution should be used in interpreting both the number of agar gel immunodiffusion (AGID) tests which were positive and the percentage of total tests positive for a State. Testing for equine infectious anemia (EIA) is performed primarily to comply with regulations on the movement of horses, and these regulations may vary from one State to another. Thus, the number of positive tests reported from a given State may not be a good indicator of the prevalence of EIA in that State.

☐ Porcine Reproductive and Respiratory Syndrome (PRRS)

Criteria: Virus isolation or antibody detection by indirect fluorescent antibody.

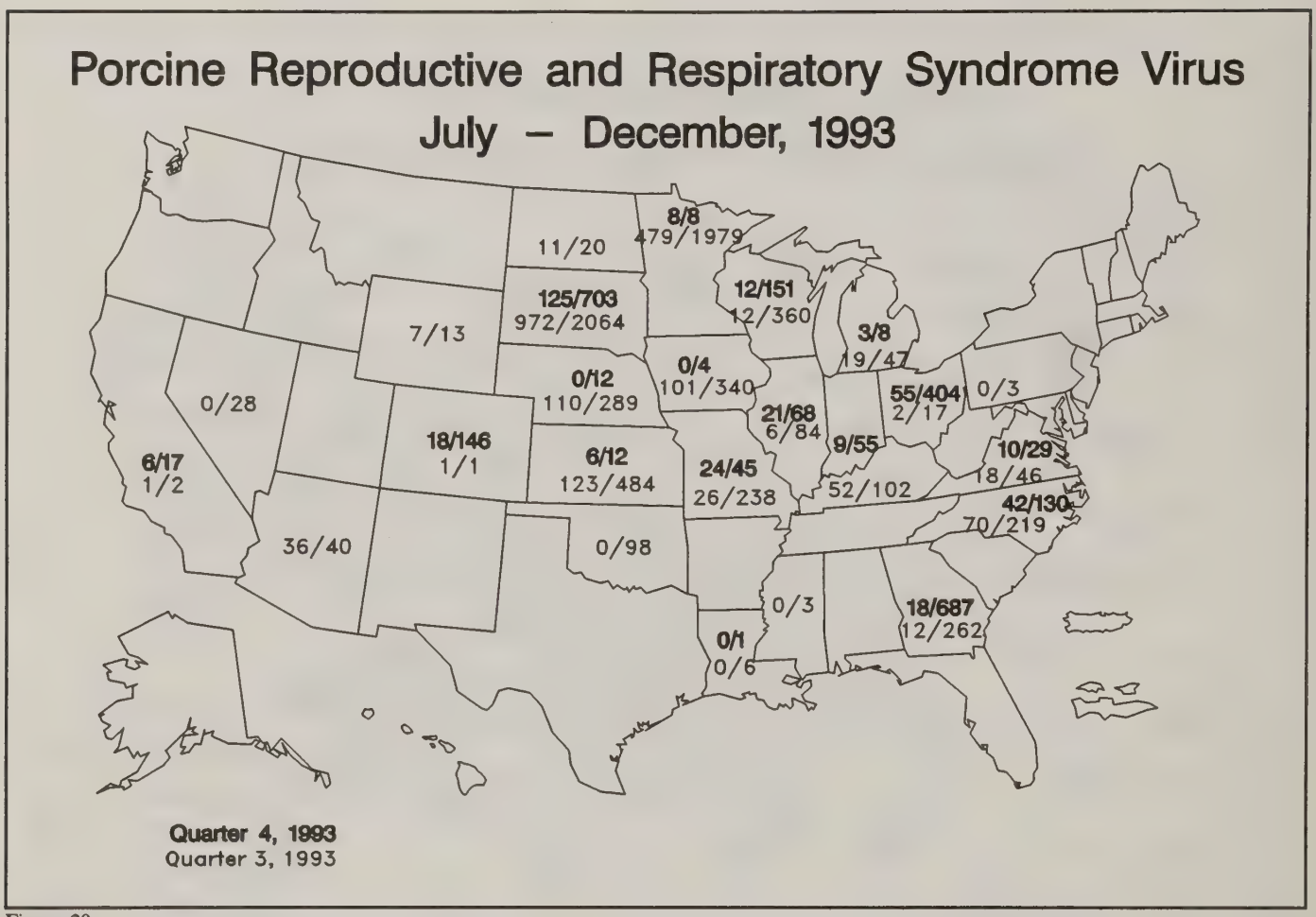

Figure 20

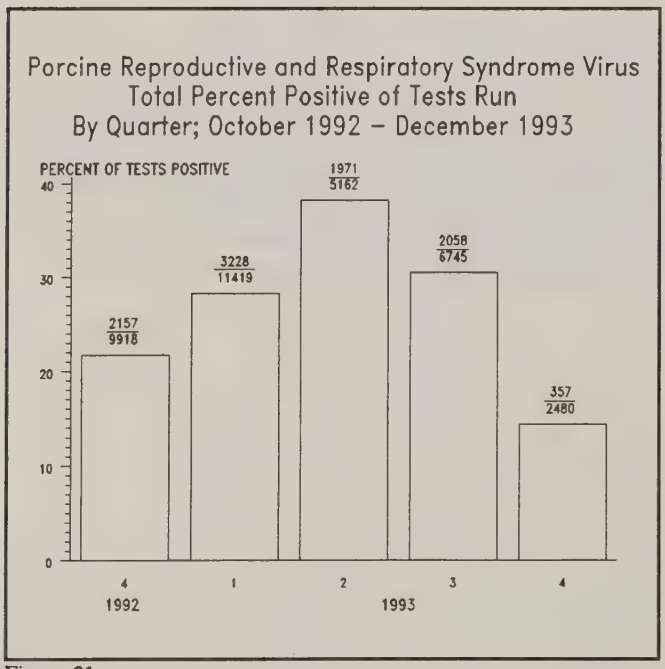

Figure 21

Figure 20 shows the test results for PRRS for quarters three and four (1993) by State. Overall, 357/2,480 (14.4 percent) tests were positive for the fourth quarter of 1993 compared to 2,058/6,745 (30.5 percent) for third quarter of 1993 (Figure 21). The apparent decrease in PRRS may reflect less reporting by the National Veterinary Services Laboratories and the fact that Minnesota, which does a large amount of testing, has not yet reported results for the fourth quarter of 1993.

In the last issue of the DxMONITOR, Alaska was reported as having 15/28 tests positive for PRRS for the second quarter of 1993. This was an error. The results were for Canadian tests; no test results should have been reported for Alaska.

II. Etiologic Agents Associated with Bovine Abortion

Section II characterizes agents most commonly associated with bovine abortions (aborted fetuses or congenitally infected calves) from accessions reported to veterinary diagnostic laboratories.

Key to Figures in this Section:

- **The percents positive presented here are the number of positive accessions out of the total number of accessions tested and should NOT be interpreted as disease prevalence or incidence rates.**
- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region or State of specimen origin and quarter year of specimen submission.**
- **See map on inside back cover for regions.**

☐ *Neospora* spp.

Criteria: Histopathology and detection of antigen by immunohistochemistry, or detection of antibody in aborted fetus by indirect FA.

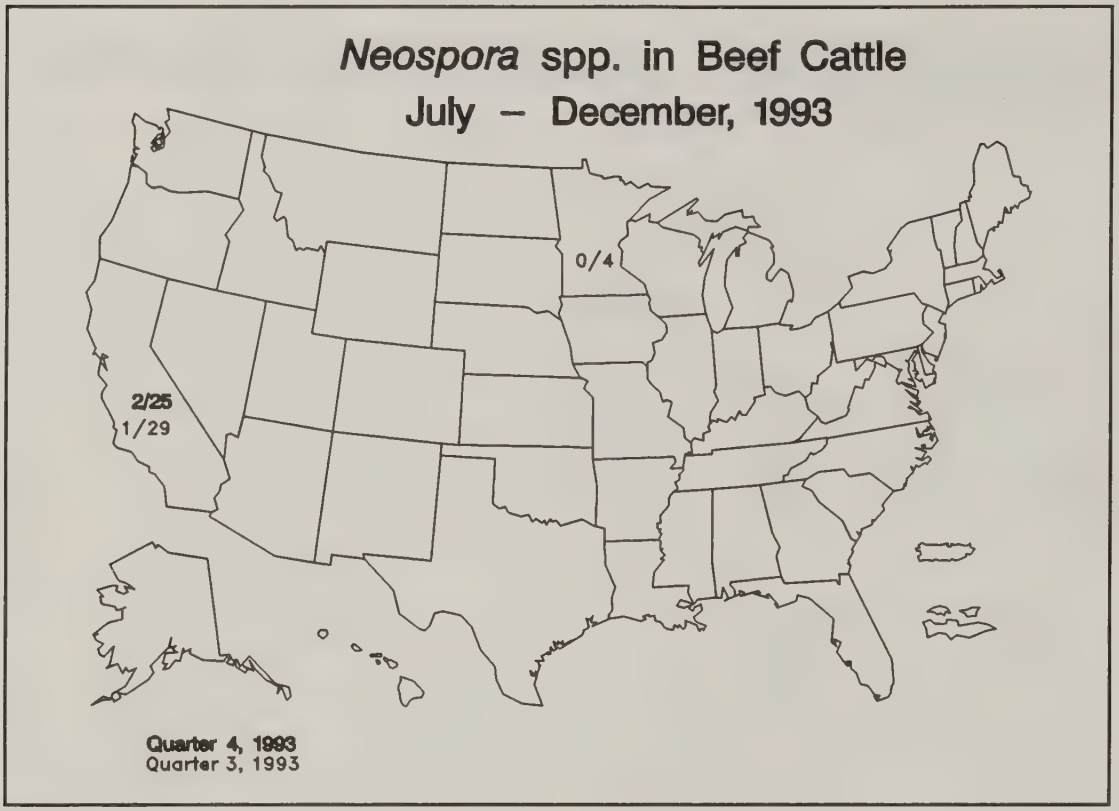

Figure 22

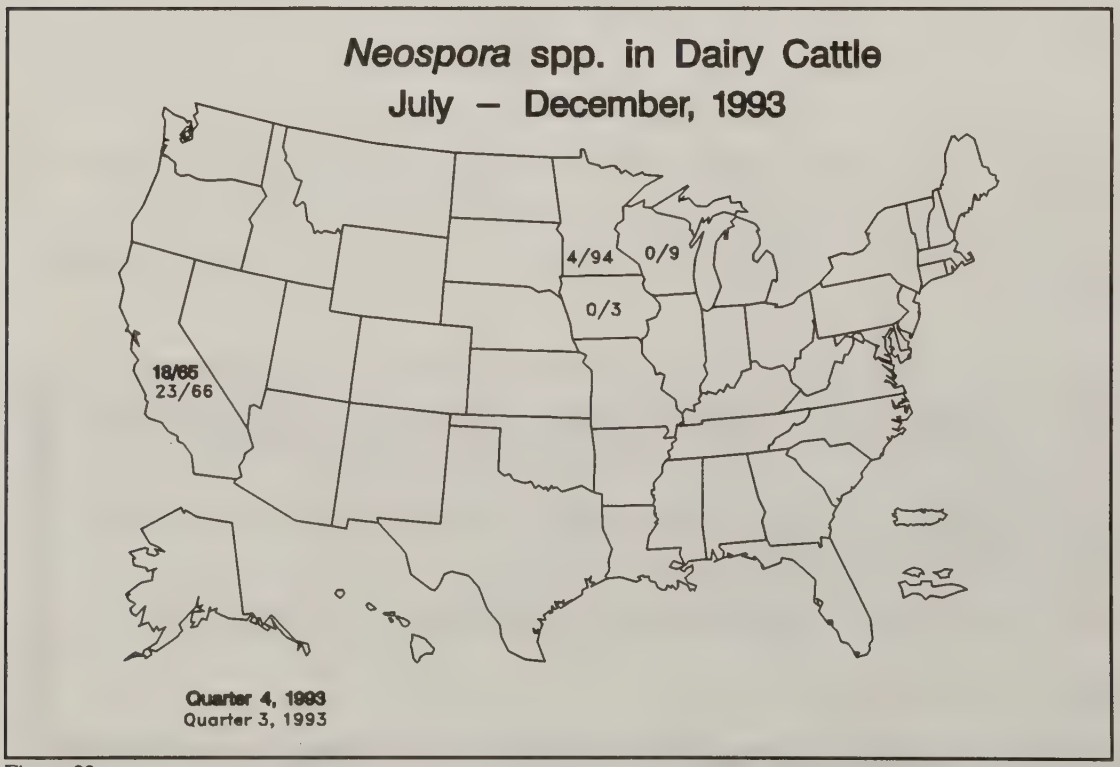

Figure 23

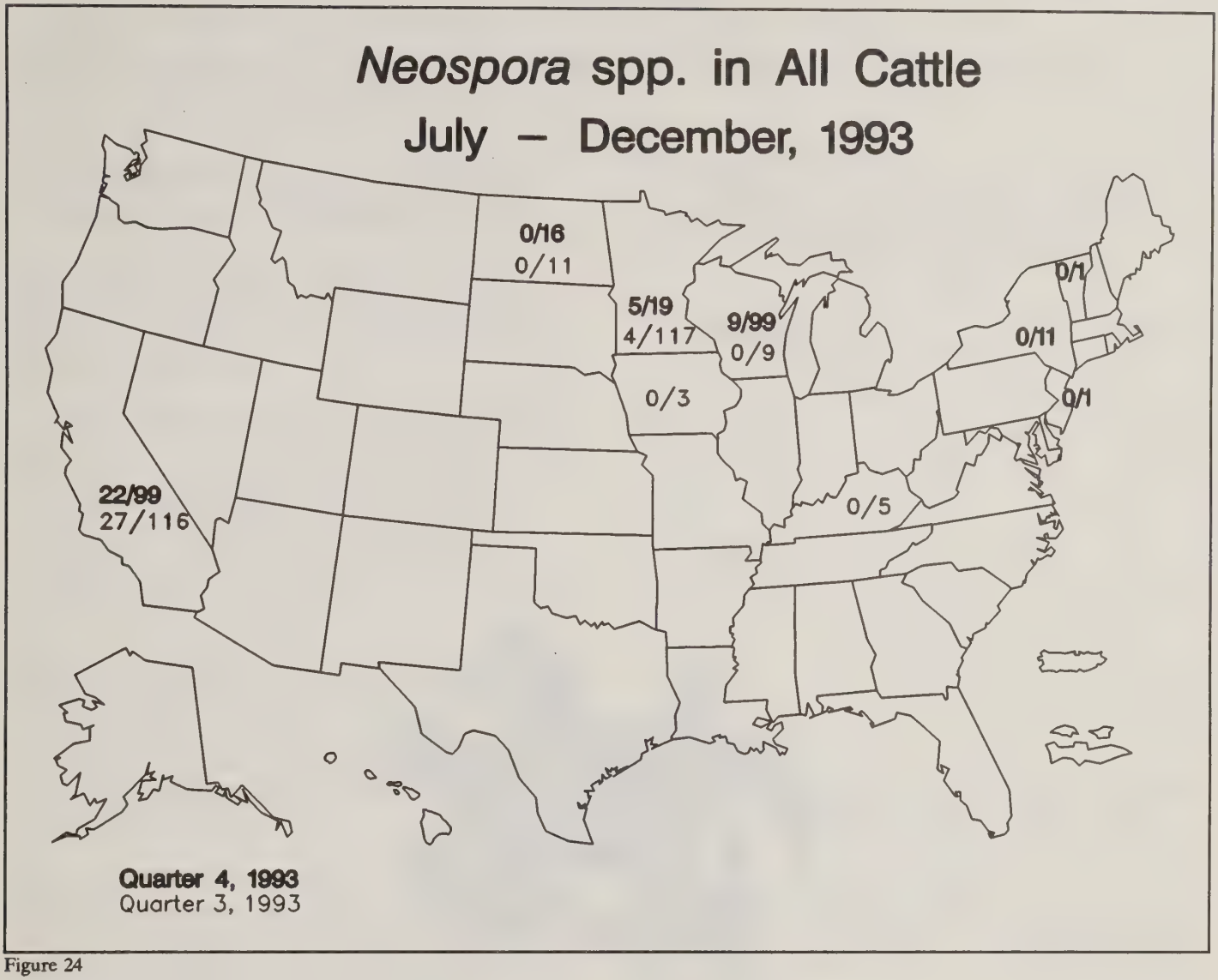

Figure 24

Figures 22 through 24 show the distribution of test results for *Neospora* spp. for the third and fourth quarters of 1993 by State. For all cattle, 36/246 (14.6 percent) accessions tested positive for *Neospora* spp. during the fourth quarter of 1993, compared to 31/261 (11.9 percent) and 7/133 (5.3 percent) for the third quarter of 1993 and fourth quarter of 1992, respectively (Figure 25). All cattle includes results where the class was unknown.

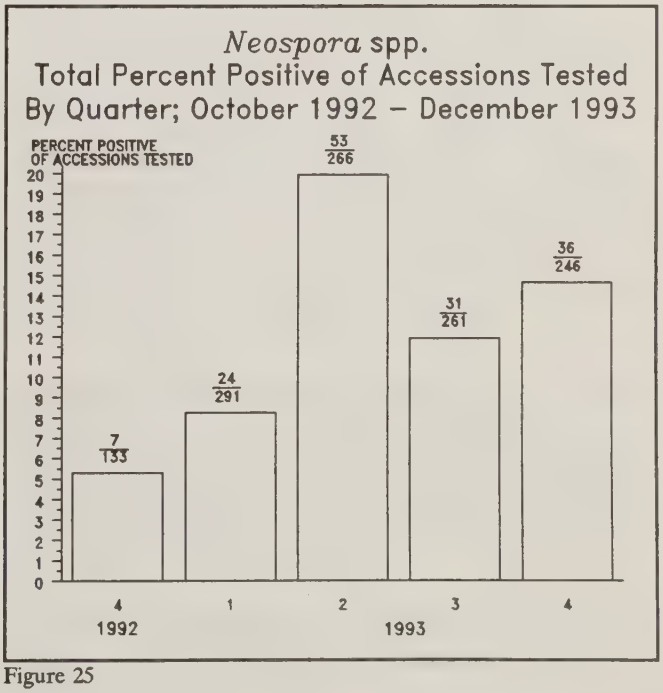

Figure 25

This section contains news items and articles of potential interest to diagnostic laboratories. Submissions from nonparticipating laboratories are welcome.

DxMONITOR Animal Health Report Reader Survey: Preliminary Analysis

The Fall 1993 DxMONITOR Animal Health Report included a request for delivery renewal and reader input. The following is a summary of the initial analysis of survey results.

A total of 1,409 copies were mailed out to domestic and foreign readers. Surveys were returned by 185 of those readers for a response rate of 13.1 percent. Of the 185 readers responding, 184 indicated that they would like to continue receiving the DxMONITOR. The one reader who requested removal from the mailing list did not answer any of the survey questions.

Question 2 asked if the respondents felt the information provided by the DxMONITOR was useful and timely. One hundred and sixty-five people responded yes (98.8 percent) and two responded no (1.2 percent). The two answering no indicated that more laboratories need to participate to provide better coverage of the U.S.

Question 3 asked if the respondent applied DxMONITOR information in his/her work and to describe how. One hundred and fifty people (93.8 percent) responded yes and 10 (6.3 percent) responded no. Seventy-seven indicated how the information was used. Twenty-one used the

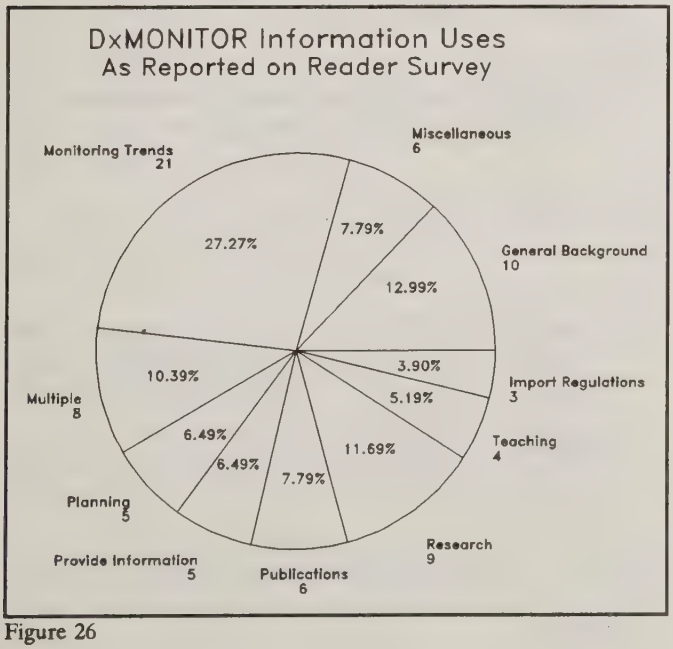

Figure 26

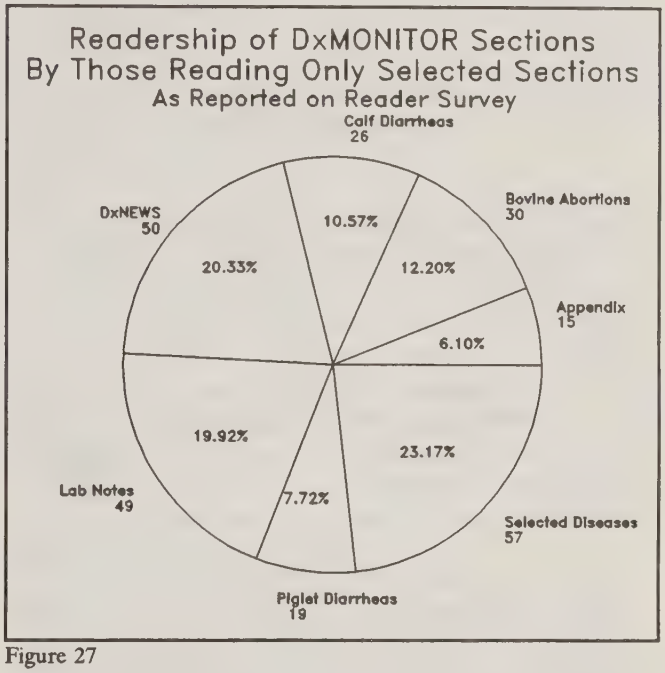

Figure 27

information to monitor disease trends; 10 for general background information; nine in research (two specified food safety); other uses included multiple applications, publications, miscellaneous uses, providing information to the public in ways other than publications, future program planning, teaching, and determining import regulations for foreign countries (Figure 26).

Question 4 asked the respondents to mark the sections of the DxMONITOR they routinely read. Eighty-nine people (54.6 percent) indicated that they routinely read all sections; three (1.8 percent) routinely read only the Lab Notes; five (3.1 percent) routinely read only the Selected Diseases; one each (0.6 percent) routinely read only the Calf Diarrheas or the DxNEWS; and 64 (39.3 percent) routinely read only selected sections. Figure 27 shows a breakdown of those who read only selected sections.

Question 5 asked the respondents to rate the sections with 1=low interest and 4=high. Lab Notes was rated a mean of 3.16. Means for Selected Diseases and DxNEWS were also above 3.0. Bovine Abortions and Calf Diarrheas followed with means of 2.82 and 2.67 respectively (Figure 28).

Question 6 asked what the respondents liked or disliked most about the current content. Of the 80

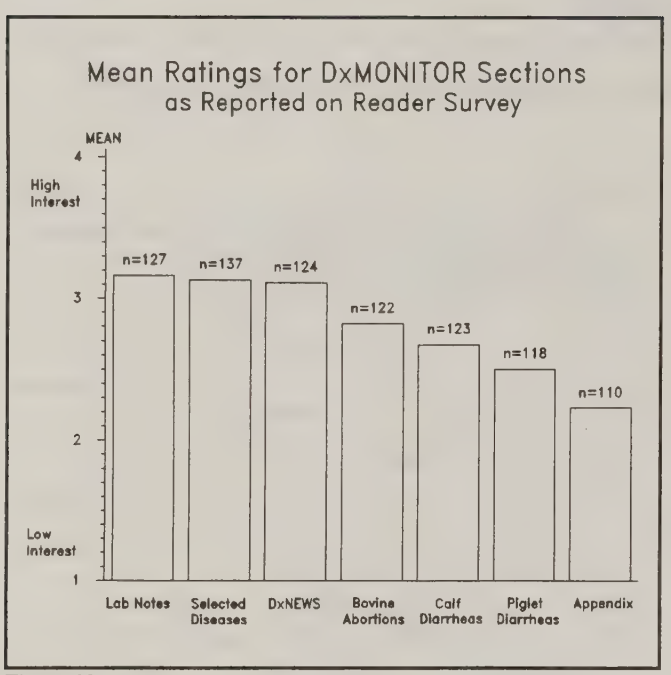

Figure 28

people responding, some commented on only likes, or dislikes, and some on both. Fifty-one (63.8 percent) commented on things they liked about the content, including the fact that is was informative, clear and easy to read, the importance of collecting veterinary diagnostic data in one place, the timeliness, the breadth of disease coverage, the value as a reference, and the sharing of other information in the Lab Notes and DxNEWS. Twenty (25.0 percent) commented on things which they disliked, including need for more laboratories to report, limited significance of some of the diseases reported, difficulty in interpreting some of the graphics, and lack of information on the total number of animals in an area. The remaining 15 (18.8 percent) made comments which could not be categorized.

Question 7 asked what the respondents liked or disliked most about the current method of data presentation. Of the 64 people answering, some commented on only likes or dislikes, and some on both. Thirty-six (56.3 percent) made comments about the presentation which they liked, including the readability of the layout, the ease of interpretation of the graphics, and the summaries. Twenty-one (32.8 percent) made comments about the presentation which they disliked, including complexity of graphics, graphics easy to misinterpret or meaningless, spotty data base, and need for more interpretation of the data's significance. The remaining eight (12.5 percent) made comments which could not be categorized.

Question 8 asked which agents or diagnoses people would like to see added. Of the 81 answering, many indicated more than one, with 26 (32.1 percent) indicating they would like to see poultry diseases included; 10 (12.3 percent) could think of no additions; five (6.2 percent) each wanted wildlife diseases and diseases of exotics (specifically ratites). Bovine and porcine respiratory diseases, fish and seafood diseases, and zoonotics were listed by under five percent; and 30 percent specified miscellaneous topics.

Question 9 asked the respondent to indicate his/her level of education. Of the 168 people answering, 133 had a professional degree, 57 had a Ph.D., 49 had a B.S., and 34 had a M.S. Forty-eight had multiple advanced degrees.

Question 10 asked the respondent to indicate his/her type of employment. Responses of the 164 people answering included: 61 (37.2 percent) university employees; 28 (17.0 percent) U.S. State Government employees, with two specifying diagnostic laboratories; and 18 (11.0 percent) USDA:APHIS:VS employees. Figure 29 shows a breakdown of all employment types.

Question 11 asked the respondents if they had any suggestions on potential applications of or collaborative opportunities for DxMONITOR data. Suggestions made by the 32 people answering included: collaboration with AAVLD/USAHA, presenting short and precise articles from participating laboratories, presenting antibiotic sensitivity testing information, and presenting information on all zoonotics and consumer concerns about the diseases and animal products.

Question 12 asked respondents if they had any other

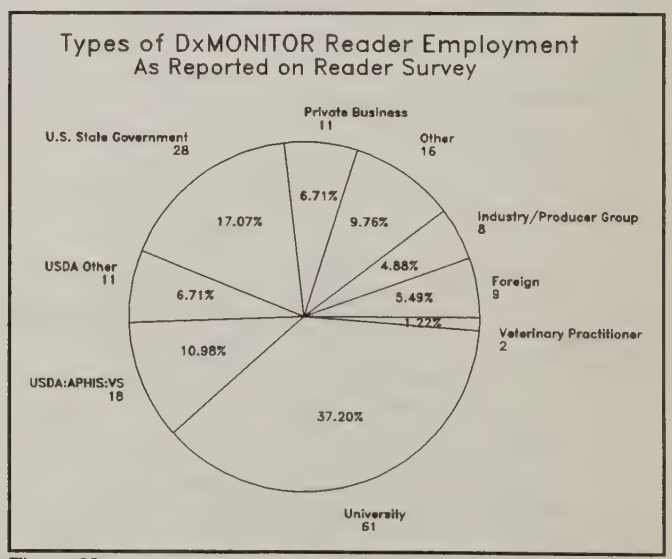

Figure 29

comments about the DxMONITOR. Responses of the 15 people answering this question included: that the DxMONITOR is a worthwhile publication, timeliness and data quality were questionable, a suggestion to include a readers' comments section, providing electronic access, inclusion of a trial issue in a practitioner newsletter, and a request that the calf diarrhea section not be discontinued.

Special thanks to each respondent, your input was appreciated. For more information on the reader survey and analysis, contact the address on the inside front cover. More results will appear in future reports.

Update on Foreign Animal Disease

African Horse Sickness. The USDA proposed declaring Portugal free from African Horse Sickness effective March 14, 1994.

Swine Vesicular Disease. The USDA proposed declaring Austria free of Swine Vesicular Disease effective March 2, 1994. Their last outbreak occurred in 1979.

Rinderpest. The USDA proposed declaring Austria, Hungary, Belgium, and Germany free of Rinderpest. Neither Austria nor Hungary has had a case since 1921, Belgium has not had a case since 1920, and Germany has not had a case since 1870.

Foot and Mouth Disease. The USDA proposed declaring Austria, Hungary, Belgium, and Germany free of Foot and Mouth Disease. Austria discontinued vaccination in 1981, and no outbreaks have occurred since. Hungary has reported no cases since 1989. Belgium discontinued vaccination in 1991 and has not had a case since 1976. Germany discontinued vaccination in 1991, and no outbreaks have occurred since 1988.

[USDA Press Releases, Jan 13, Jan 21, Feb 28, Mar 2, 1994]

Hog Cholera. Two outbreaks of Hog Cholera occurred in Bulgaria from December 16, 1993, through January 18, 1994. The outbreaks involved pigs which had been fed swill. Control measures include quarantine and destruction of affected animals.

[O.I.E. Disease Information, Vol 7:3, Jan 21, 1994]

Salmonella enteritidis Isolated at the National Zoo

The National Zoo in Washington D.C. experienced an outbreak of *Salmonella enteritidis* phage type 4 (variant) (SE PT-4 [var]) between June and September 1993. The SE PT-4 (var) was isolated from at least ten Egyptian spiny mice, three tenrecs or Madagascar hedgehogs, a lesser tree shrew, and a gorilla.

Phage typing done at the National Veterinary Services Laboratories (NVSL) on the zoo isolates indicated a pattern of phage lysis similar, but not identical, to the SE PT-4 (var) that has caused human illness in Great Britain and Europe from the consumption of raw or undercooked eggs. However, there is no evidence thus far to indicate this SE PT-4 variant has the same virulence for humans as its European counterpart. Except for a previous outbreak at the National Zoo in 1989, there have been no known outbreaks of this SE phage type in man or animals.

Infection was first detected in the tenrecs in June 1993, and then an increased mortality developed in the zoo's exhibit of almost 100 spiny mice. Clinical signs were primarily septicemia rather than enteritis in the mice and mortality reached 4-5 mice per week in early September, at the height of the outbreak. The infection spread to other species at the zoo, but the mode of transmission between species is unknown. A lesser tree shrew developed peritonitis and a gorilla developed a perineal abscess from which SE PT-4 (var) was isolated. Three buildings at the zoo were eventually involved. The colony of spiny mice was depopulated and other species were isolated and treated. The affected buildings were cleaned and disinfected to avoid continued infections of zoo inhabitants and the possibility of zoonotic spread.

[Source: Richard J. Montali, Department of Pathology, National Zoo, Washington, D.C., (202) 673-4869.]

New Laboratories Join the Veterinary Diagnostic Reporting System (VDLRS)

Welcome to the latest laboratories to join the VDLRS. They are the Animal Disease Diagnostic Laboratory, Purdue University, West Lafayette, Indiana; Pan American Veterinary Laboratories, Austin, Texas; and the Central Animal Health Laboratory, Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison, Wisconsin.

Free Data Submission Software Available

The DxMONITOR Data Submission System (DDSS) is available free of charge to any laboratory interested in participating in the Veterinary Diagnostic Laboratory Reporting System (VDLRS).

To use the DDSS, data must first be captured by a laboratory in whatever manner works best for that particular laboratory. The summary totals of those data are then entered into a data entry screen which is provided as part of the DDSS. A computer file is automatically created for use in transferring the data. A reference guide leads the user through this process. Because the system was written within a software package called "Epi Info," a copy of this program and a user's guide are also included. Epi Info was developed by the Centers for Disease Control and the World Health Organization. It has many capabilities including data analysis, word processing, statistics, etc. Please contact the address on the inside front cover of this issue for more information about the DDSS.

Lab Notes and DxNEWS Article Submissions are Encouraged

Readers of the DxMONITOR Animal Health Report are encouraged to submit items suitable for the "Lab Notes" and the "DxNEWS." All articles should be typed double spaced. Photos/art work should be camera ready copy. If possible, please provide your article on diskette and indicate what type of software was used to create/store the file (i.e., WordPerfect, Word Star). Send submissions to the address on the inside front cover of this issue.

Materials available from the VDLRS are listed below. Send this clip-out order form to:

Veterinary Diagnostic Laboratory
Reporting System
USDA:APHIS:VS
555 South Howes, Suite 200
Fort Collins, CO 80521-2586

Quantity

____ **DxMONITOR Animal Health Report*** *(Quarterly report of VDLRS data)*

____ **Introduction to the VDLRS** *(An informational brochure)*

____ **Report of the 1991 DxMONITOR Committee Meeting** (August 1991)

* The most recent issue of the DxMONITOR will be sent. If you want past issues, please call (303) 490-7800.

Name:_____

Affiliation:_____

Street:_____

City/State:_____ ZIP:_____

☐ Please add my name to the mailing list for the DxMONITOR Animal Health Report.

Appendix

This section provides tables displaying the most recently reported diagnostic laboratory data.

Key to Tables in this Section:

- Data are presented by laboratory of specimen origin and quarter of specimen submission. Because individuals within a State may utilize outside laboratories in addition to their own, the State numbers presented in the State maps may not agree with the numbers presented by reporting laboratory in the appendix.
- Values represent the number of positive tests or accessions (P) and the number of tests performed or accessions tested (T).
- Values reported in the "TOT" category represent all tests performed during the quarter This category may include some tests for which a month of specimen submission was not known. Therefore, the sum of the quarterly values may not be equal to the "TOT" values.
- Data totals (positives and total tests) shown for "All Calves" include specimens of unknown bovine class and those from veal calves, in addition to specimens from beef or dairy calves. Thus, the sums of dairy calf totals and beef calf totals do not always equal the totals shown for all calves.
- Values reported for all diagnoses/agents are for quarters in 1992 and 1993.
- In some cases, the reported total number of tests performed is a minimum because some laboratories were not able to determine the total number of negative tests performed.
- Abbreviations for laboratories used in the tables are:

ARVDL = Arkansas	CAVDL = California	FLVDL = Florida	GAATH = GA, Athens
GATFT = GA, Tifton	IAVDL = Iowa	INVDL = Indiana	KYMSU = KY, Hopkinsville
KYVDL = KY, Lexington	MNDVL = Minnesota	MOVDL = Missouri	NDVDL = North Dakota
NEVDL = Nebraska	NMVDL = New Mexico	NVSL = National	NYVDL = New York
OHVDL = Ohio	OKVDL = Oklahoma	ORVDL = Oregon	PAVL = TX, Austin
PRVDL = Puerto Rico	SCVDL = South Carolina	SDVDL = South Dakota	TNVDL = Tennessee
TXVDL - TX, College Station	VAVDL = Virginia	WIVDL = Wisconsin	WYVDL = Wyoming

Appendix

Bovine Leukosis Virus

Lab		Beef Quarter 1/93	Beef Quarter 2/93	Beef Quarter 3/93	Beef Quarter 4/93	Beef TOT	Dairy Quarter 1/93	Dairy Quarter 2/93	Dairy Quarter 3/93	Dairy Quarter 4/93	Dairy TOT	Total Quarter 1/93	Total Quarter 2/93	Total Quarter 3/93	Total Quarter 4/93	Total TOT
ARVDL	P	18	22	35		75	8	7	17		32	32	36	77		145
	T	31	42	82		155	12	14	28		54	54	91	168		313
CAVDL	P				2	2				175	175	61	130	117	178	486
	T				32	32				626	626	277	438	342	667	1724
FLVDL	P	5	6	30	9	50	44	27	27	133	231	49	33	57	142	281
	T	74	33	719	153	979	84	41	52	273	450	158	74	771	426	1429
GAATH	P											6	70	14	15	105
	T											29	119	45	32	225
GATFT	P											238	3092	74	43	3447
	T											509	5100	158	105	5872
INVDL	P				20	20									20	20
	T				41	41									41	41
KYMSU	P											77		62	78	217
	T											163		144	188	495
KYVDL	P				37	37				107	107				150	150
	T				237	237				287	287				538	538
MNVDL	P											103	119	109		331
	T											354	407	303		1064
MOVDL	P											32	10	20	22	84
	T											520	275	250	44	1089
NDVDL	P											95	51	58	13	217
	T											441	242	147	49	879
NMVDL	P				0	0			2	0	2			2	0	2
	T				0	0			3	0	3			3	0	3
NVSL	P											0	19	0	0	19
	T											51	254	8	33	346
NYVDL	P											820	514	391	842	2567
	T											5127	4638	2302	4601	16668
OHVDL	P											677	468	359	280	1784
	T											2103	1848	1311	1584	6846
OKVDL	P	156	10	59	42	267	37	3	24	24	88	280	13	87	82	462
	T	349	37	137	85	608	48	3	38	29	118	515	40	197	142	894
PRVDL	P												2			2
	T												20			20
TNVDL	P											22		91	277	390
	T											47		167	525	739
TXVDL	P											311	343	128	322	1104
	T											1249	1125	1232	1888	5494
VAVDL	P	2	104	31	13	150	57	22	10	26	115	81	134	41	39	295
	T	20	370	153	123	666	172	58	40	100	370	236	454	193	223	1106

Paratuberculosis by Culture, Histopathology, or DNA Probe

		Bovine					Ovine					Caprine				
		|---- Quarter ---- |					|---- Quarter ---- |				|---- Quarter ---- |			
Lab		4/92	1/93	2/93	3/93	TOT	4/92	1/93	2/93	3/93	TOT	4/92	1/93	2/93	3/93	TOT
ARVDL	P	4	4	1		9										
	T	10	6	5		21										
CAVDL	P	5	1		2	8						0				0
	T	30	121		113	264						1				1
FLVDL	P		16	32	18	66							5		1	6
	T		48	72	45	165							17		2	19
GAATH	P		4			4										
	T		30			30										
GATFT	P		0		0	0										
	T		5		3	8										
KYMSU	P	20	7	11	16	54										
	T	293	17	45	57	412										
KYVDL	P	19			7	26										
	T	50			20	70										
MNVDL	P	19	82	12	21	134			0	0	0	0		0	1	1
	T	168	249	22	181	620			2	1	3	1		2	1	4
MOVDL	P	4	2	4		10										
	T	29	35	20		84										
NDVDL	P	2	4	1	9	13									1	1
	T	2	4	.	9	14									1	1
NVSL	P	9	3	5	6	23						1	0	0	0	1
	T	157	20	198	24	399						12	1	2	2	17
NYVDL	P	255	399	111	69	834		0	0	1	1	1	2	0	1	4
	T	2757	4334	1562	422	9075		3	8	5	16	13	20	3	1	37
OHVDL	P	76	89	70	65	300	0	0	0	0	0	1	0	0	4	5
	T	655	941	661	707	2964	1	2	5	3	11	1	1	2	17	21
SDVDL	P		2	12	7	21			1	0	1					
	T		3	25	18	46			1	1	2					
VAVDL	P	0	0	1		1										
	T	15	17	9		41										
WIVDL	P				47	47										
	T				276	276										

M. paratuberculosis by Serology

		Bovine					Ovine					Caprine				
		Quarter					Quarter					Quarter				
Lab		1/93	2/93	3/93	4/93	TOT	1/93	2/93	3/93	4/93	TOT	1/93	2/93	3/93	4/93	TOT
CAVDL	P		16		26	42		1		0	1		0		3	3
	T		144		188	332		4		2	6		5		11	16
GAATH	P			6	9	15										
	T			23	30	53										
GATFT	P			3	6	9										
	T			19	36	55										
INVDL	P				4	4									0	0
	T				30	30									3	3
KYMSU	P		15	45		60										
	T		20	162		182										
MNVDL	P		82	81		163		1			1		0	1		1
	T		214	238		452		1			1		46	2		48
MOVDL	P				2	2										
	T				14	14										
NDVDL	P				155	155										
	T				828	828										
NYVDL	P		44	18	79	141		1	1	11	13		2	0	3	5
	T		246	52	647	945		7	4	175	186		37	8	136	181
OHVDL	P		9	21	24	54										
	T		302	289	631	1222										
OKVDL	P	1	0	5	4	10										
	T	40	320	54	24	438										
PAVL	P				6	6				4	4				24	24
	T				73	73				139	139				256	256
PRVDL	P	2	0			2										
	T	6	5			11										
TNVDL	P		8	21	25	54										
	T		135	120	277	532										
VAVDL	P	10	13	10	24	57										
	T	55	23	34	61	173										
WIVDL	P				216	216									3	3
	T				442	442									6	6

Neospora spp.

Lab		Beef 1/93	Beef 2/93	Beef 3/93	Beef 4/93	Beef TOT	Dairy 1/93	Dairy 2/93	Dairy 3/93	Dairy 4/93	Dairy TOT	Total 1/93	Total 2/93	Total 3/93	Total 4/93	Total TOT
		|---- Quarter ---- |					|---- Quarter ---- |				|---- Quarter ---- |				
CAVDL	P	1	11	1	2	15	14	27	23	18	82	19	41	27	22	109
	T	27	41	33	25	126	54	70	66	65	255	96	121	116	99	432
KYMSU	P													0		0
	T													5		5
MNVDL	P	0	0	0		0	5	9	4		18	5	9	4		18
	T	49	8	4		61	125	122	106		353	195	142	116		453
MOVDL	P													0		0
	T													0		0
NDVDL	P												0	0	5	5
	T												.	24	35	59
NYVDL	P												2		0	2
	T												.		13	13
OHVDL	P											0	1			1
	T											.	.			.
WIVDL	P														9	9
	T														99	99

Porcine Reproductive and Respiratory Syndrome Virus

Lab		1/93	2/93	3/93	4/93	TOT
		|------- Quarter ------- |				
CAVDL	P		10	0	3	13
	T		30	1	8	39
GAATH	P				15	15
	T				413	413
GATFT	P	9		12	3	24
	T	21		262	274	557
INVDL	P				13	13
	T				69	69
KYMSU	P			8		8
	T			40		40
MNVDL	P	1309	994	856		3159
	T	3217	2554	3402		9173
MOVDL	P		1	6	23	30
	T		5	31	40	76
NVSL	P	1749	981	204	130	3064
	T	7201	2601	945	603	11350
OHVDL	P				52	52
	T				396	396
SDVDL	P	161		972	118	1251
	T	980		2064	677	3721

Equine Viral Arteritis

Lab		1/93	2/93	3/93	4/93	TOT
		|------- Quarter ------- |				
CAVDL	P	11	7	4	4	26
	T	398	233	260	348	1239
FLVDL	P	9	1	16	33	59
	T	738	430	540	2251	3959
GAATH	P	2	0		3	5
	T	10	14		19	43
GATFT	P	0	0		0	0
	T	19	7		8	34
KYVDL	P				133	133
	T				1922	1922
NMVDL	P			0	0	0
	T			40	9	49
NVSL	P	40	8	43	4	95
	T	121	58	332	197	708
NYVDL	P	34	28	51	47	160
	T	471	347	938	545	2301
VAVDL	P	0	0	0	0	0
	T	48	25	37	22	132

REGIONS OF THE VDLRS

Abbreviations for regions used in this issue are:

AK = Alaska
CL = Central
FL = Florida
HI = Hawaii
ME = Mideast
MN = Mountain
NC = North-Central
NE = Northeast
PA = Pacific
PR = Puerto Rico & U.S. Virgin Islands
SC = South-Central
SE = Southeast
SW = Southwest
UNK = Unknown

Contributing Laboratories

The following laboratories have contributed data reported in the DxMONITOR Animal Health Report. Thanks to all of the individuals at these laboratories who have worked to make this report possible.

- Arkansas Livestock and Poultry Commission Diagnostic Laboratory (Little Rock, AR)
- California Veterinary Diagnostic Laboratory System (Davis, CA)
- Bureau of Diagnostic Laboratories, Florida Department of Agriculture (Kissimmee, FL)
- Veterinary Diagnostic Laboratory, University of Georgia (Athens, GA)
- Veterinary Diagnostic and Investigational Laboratory, University of Georgia (Tifton, GA)
- Veterinary Diagnostic Laboratory, Iowa State University (Ames, IA)
- Animal Disease Diagnostic Laboratory, Purdue University (West Lafayette, IN)
- National Veterinary Services Laboratories (Ames, IA)
- Breathitt Veterinary Center, Murray State University (Hopkinsville, KY)
- Livestock Disease Diagnostic Center, University of Kentucky (Lexington, KY)
- Minnesota Veterinary Diagnostic Laboratory, University of Minnesota (St. Paul, MN)
- Veterinary Medical Diagnostic Laboratory, University of Missouri-Columbia (Columbia, MO)
- Veterinary Diagnostic Center, University of Nebraska-Lincoln (Lincoln, NE)
- Veterinary Diagnostic Services, New Mexico Department of Agriculture (Albuquerque, NM)
- New York State Veterinary Diagnostic Laboratory, Cornell University (Ithaca, NY)
- North Dakota Veterinary Diagnostic Laboratory, North Dakota State University (Fargo, ND)
- Reynoldsburg Laboratory, Ohio Department of Agriculture (Reynoldsburg, OH)
- Oklahoma Animal Disease Diagnostic Laboratory, Oklahoma State University (Stillwater, OK)
- Veterinary Diagnostic Laboratory, Oregon State University (Corvallis, OR)
- Puerto Rico Animal Diagnostic Laboratory (Dorado, PR)
- Clemson Diagnostic Laboratory, Clemson University (Columbia, SC)
- Animal Disease Research and Diagnostic Laboratory, South Dakota State University (Brookings, SD)
- C.E. Kord Animal Disease Diagnostic Laboratory, Tennessee Department of Agriculture (Nashville, TN)
- Pan American Veterinary Laboratories, (Austin, TX)
- Texas Veterinary Medical Diagnostic Laboratory, Texas A&M University (College Station, TX)
- Bureau of Laboratory Services, Virginia Department of Agriculture and Consumer Services (Richmond, VA)
- Central Animal Health Laboratory, Wisconsin Dept. of Agriculture, Trade and Consumer Protection (Madison, WI).
- Wyoming State Veterinary Laboratory (Laramie, WY)

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